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Taxation influences upon the market in venture capital trust stocks: theory and practice

KEVIN HOLLAND[a]* and RICHARD H.G. JACKSON[b]

[a]*School of Management, University of Southampton, Southampton, SO17 1BJ, UK;* [b]*School of Management and Business, Aberystwyth University, Aberystwyth, SY23 3DD, UK*

Individuals investing in a venture capital trust (VCT) IPO listed on the London Stock Exchange receive a number of conditional tax incentives; the time-related nature of the associated conditions can create a 'lock-in effect'. By deriving and testing a model of the value of these incentives we examine how they influence investors' pricing and trading decisions. This paper contributes to the ongoing tax capitalisation debate in three ways: first, by calculating the magnitude of the lock-in effect without reference to underlying shareholder records; second, by adopting a time series approach in view of the time-varying magnitude of the potential lock-in effect, and thereby avoiding control issues involved in cross-sectional analysis of the effects of taxation on pricing; and third, by focusing on changes in the bid–ask spread rather than, for example, mid price, so reducing the impact of changes in the market value of the instruments under consideration on the analysis. Our results have direct policy implications in suggesting a conflict between the existence of time-related conditional tax incentives and the requirement for VCTs to be listed on the London Stock Exchange explicitly in order to promote liquidity in a historically illiquid sector of the market.

Keywords: venture capital trust; taxation; relief; lock-in effect; listing

1. Introduction

Successive UK governments, like their counterparts in the USA, the Netherlands and elsewhere, have attempted to use tax-based incentives to correct a perceived market failure in the provision of finance to small, unquoted companies. One such scheme in the UK promotes the use of venture capital trusts (VCTs). An explicit aim of the VCT legislation is the provision of an exit strategy to investors thereby reducing one source of the potential market failure (HM Inland Revenue 2002). Consequently, VCTs are required to be listed on the London Stock Exchange. We report, however, that the secondary market in VCT shares is characterised by low levels of market liquidity as indicated by typically low trading volumes. This paper examines whether investors' pricing

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*Corresponding author. Email: k.holland@soton.ac.uk

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and trading decisions can be explained in terms of tax considerations and, therefore, whether the design of the VCT legislation (and associated tax legislation) is a potential cause of the low liquidity.

Individuals investing in a VCT IPO receive a number of conditional tax incentives including, most significantly, 'investment relief', an income tax rebate based on the sum initially invested. To reduce the potential benefits of 'tax avoidance', a repayment or 'clawback' of the rebate can arise if the shares in the VCT are sold within a 'required holding' period (HM Treasury 2003). This paper derives a model of the present value of the conditional tax incentive during the currency of the required holding period, and then tests empirically a number of predictions about market behaviour based on this model.

The issue of the impact of taxation on asset prices has been subject to considerable academic investigation. There remains, however, a lack of consensus over, in particular, the impact of investor-level taxes on share prices. A main source of the controversy revolves around identifying the tax status of the price setting or marginal investor. Further difficulty arises from distinguishing between competing effects. For example, in studies of UK markets, while Ang *et al.* (1991) and Chui *et al.* (1992) conclude that investor-level taxes are reflected in gross yields, Morgan and Thomas (1998) dispute the validity of a tax-based explanation, suggesting dividend signalling effects and a delayed related price reaction as alternatives. The lack of consensus internationally on the impact of investor-level taxes is evidenced in Harris and Kemsley (1999), Collins and Kemsley (2000), Harris *et al.* (2001), Dhaliwal *et al.* (2003) and Hanlon *et al.* (2003). More fundamentally, questions pertain as to the efficiency of markets with respect to taxation. In studies of US markets, Cutler (1988) concluded that 'results leave unanswered questions about ... whether [tax] news was efficiently incorporated into stock prices' (p. 1108); and Elton *et al.* (2004) found indications that 'individuals either do not pay attention to taxes or are unaware of the differences across funds and their predictability' (p. 281). Hubbard and Michaely (1997) raised similar concerns.

We address the effect of investor-level taxes by examining their influence on disposal timing decisions and the resulting effect on price, that is, investigating the existence and extent of a 'lock-in effect'. Such an effect typically arises when the taxation of gains is on a realised basis and, consequently, provides investors with an incentive to defer realisation of the gain (Stiglitz 2000, Devereux and Freedman 2008). In the context of capital gains tax (CGT) in the UK, a lock-in effect may be exacerbated by the availability of taper relief, which reduces the effective rate of tax with reference to the length of ownership. Lock-in effects can arise in other tax settings, for example, under corporation tax settings in the context of disposal of assets on which capital or investment allowances have been granted; or in the context of the decision as to whether or not to continue trading where there exist past trading taxation losses which are yet to be utilised.

Although studies find evidence of pricing consequences of a lock-in effect, for example, Klein (2001) and Blouin *et al.* (2002), such studies necessarily rely on assumptions about the date of asset acquisition in order to estimate the tax cost of the lock-in effect associated with a particular asset (although an exception is Landsman and Shackelford 1995, who had access to confidential shareholder records which allowed them to calculate shareholder-specific tax liabilities by specific shareholder). However, the structure of VCTs in the UK allows a research methodology which overcomes the above limitations as discussed below. In other settings to overcome the above limitation regarding a pricing effect, more recent research has focused on relative trading volumes to find evidence of a lock-in effect, for example, Ayers *et al.* (2008).

Our analysis of bid–ask spreads confirms the existence of a lock-in effect, consistent with findings of low trading volumes, and has direct policy relevance on two aspects. First, the resulting disincentive to trade reduces liquidity, thereby potentially reducing VCTs' ability to attract funding and increasing their cost of capital; and second, the lock-in effect inhibits VCT investors from re-investing in more profitable activities, thus creating a welfare loss (Stiglitz 2000) and related increased agency costs. The results may be summarised as follows. First, VCT bid–ask spreads evolve over time in a way consistent with investment relief being capitalised, and the bid–ask spread increases as the present value of the investment relief increases. As the present value increases over time, VCT shareholders require an increasingly higher price if they are to sell within the required holding period and, thus, forfeit their investment relief. Potential secondary market purchasers, however, are not entitled to investment relief and are, therefore, only willing to pay a price that is independent of any investment relief consideration. Second, VCT spreads fall significantly and the number of customer bargains increases significantly following the end of the required holding period, consistent with the cessation of the lock-in effect. Third, spread is greater for VCTs with a three-year as opposed to a five-year required holding period, consistent with the present value of the investment relief being higher the shorter the holding period. And fourth, VCT spread and volume traded are, respectively, greater than and less than the spread and volume traded for a non-VCT comparator sample (for which comparator sample, in the absence of specific tax incentives, there is no tax-related required holding period). We argue that our results present stronger evidence of a lock-in effect than do many previous studies, this being facilitated by the setting for our work.

In addition to its policy relevance, our study contributes to the lock-in literature principally in three respects. First, we calculate the magnitude of the lock-in effect with certainty, yet without reference to underlying shareholder records, which allows examination of a broader sample than would be likely to be available were access to confidential shareholders' records required. Second, we adopt a time series approach, in view of the time-varying magnitude of the potential lock-in effect, and thereby avoid control issues involved in cross-sectional analysis of the effects of taxation on pricing. And third, we focus on changes in the bid–ask spread rather than, for example, mid price, and so reduce the impact of changes in the market value of the instruments under consideration in the analysis.

The paper proceeds as follows: the next section discusses VCTs and associated taxation regulation; the third section develops a theoretical model for the valuation of VCT investment relief; the fourth section describes the data, hypothesis and research method; the results are presented and discussed in the fifth section; and the final section concludes.

2. Legislative and institutional background

Legislation establishing VCTs was included in the UK Finance Act 1995, and the first VCT was created in November 1995. The term 'trust' is, strictly, a misnomer, since, in order to be approved as VCTs under the Finance Act 1995, they are required to be public limited companies quoted on the London Stock Exchange.[1] Approval under the 1995 Act results in two distinct sets of tax reliefs: shareholder-level reliefs and firm-level reliefs. Critical to this analysis, shareholder-level reliefs are restricted to private individuals, thereby excluding the possibility that the (rational) marginal shareholder could be a tax-exempt organisation, since such organisations would be unwilling to pay a share price subsuming shareholder-level reliefs which are of no value to them.[2] The terms of approval are given in S.70, Finance Act 1995, and are primarily concerned with the composition of the assets held by the VCT,[3] size of holding[4] and size of companies in which it invests.[5] The legislation also specifies approved trades, in order to direct investment away from relatively low risk asset-backed investment ventures towards risky activities which may, otherwise, experience difficulty in attracting investment.

The requirement that all VCTs must be quoted on the London Stock Exchange is designed to provide investors with a ready market for assets with typically illiquid underlying investments and thereby reduce the risks associated with unquoted investments.[6,7] Individual investors may obtain a number of tax reliefs when investing in VCTs. Original subscribers (but not secondary market purchasers) can obtain income tax relief at a rate of 20% on the cost of their original investment (referred to as 'investment relief' for the purposes of this paper) conditional upon the shares being held by the individual for a required holding period. This required holding period was originally five years, but was reduced (non-retrospectively) to three years for seasoned and unseasoned issues occurring on or after 6 April 2000. If the shares are disposed of before the expiration of the required holding period a 'clawback' of the income tax occurs, based on the lesser of the amount invested or disposal proceeds. Additionally, a subscription to acquire VCT shares can, subject to certain conditions being satisfied, be used to defer a tax gain realised on a non-VCT asset. Following the introduction in the UK Finance Act 1998 of taper relief (for CGT calculation purposes), the ability to defer a gain is now of less significance to potential investors, particularly in relation to gains on business assets.[8]

Further relief is given by an exemption from CGT in respect of any gain on disposal of shares in VCTs, and by exemption from income tax upon dividends received from VCTs. For the purpose of this paper, these two reliefs are together referred to as 'return reliefs'. The return reliefs are available to all individual UK tax paying shareholders,[9] irrespective of whether they acquired their shareholding by direct subscription or by purchase in the subsequent secondary market.

Therefore, in subscribing for shares in a VCT an investor is acquiring four distinct assets or rights: (i) a share of the VCT's net assets; (ii) the right to investment relief; (iii) the possibility of roll-over relief; and (iv) the right to return reliefs. Of these, the second and third cannot be acquired by a secondary market purchaser.

Since a subscriber forfeits the right to investment relief upon selling VCT shares within the required holding period, and since investment relief may not be transferred to purchasers in the secondary market, we deduce that the secondary market in a VCT share will be characterised by high bid–ask spread and low trading volume during the required holding period for that share. A market maker will only offer to sell VCT shares for a price at which he/she can readily obtain (or replace) such shares in the market: this price will include, to some extent, an element reflecting the value of investment relief rights of original subscribers. Potential purchasers, by contrast, will place no value on investment relief and will not be prepared to pay for it. Once the required holding period for the share is over, we may expect to see a lower bid–ask spread and consequently higher trading volume.

We would expect, therefore, that the quoted prices for VCTs in the secondary market to comprise the following elements: market value of underlying VCT assets; conventional discount (or premium) upon the market value of underlying assets, as per the literature on investment trusts in general; expected value of return reliefs; conventional market makers' spread; and spread attributable to the expected value of investment reliefs.

Table 1 sets out the number of VCT share issues by fiscal year since 1995–96, split for 1997–98 onwards between issues of VCT shares new to the market, and those which are further issues of pre-listed shares. An economically significant amount, over £3.3 billion, has been raised by the issue of VCTs new to listing and (typically smaller value) further issues; and the UK government provided £60 million in 2008–2009 (£80 million in 2007–2008) for example in respect of the loss of income tax in respect of venture capital trust relief (HM Treasury 2009a). The government has stated that VCTs, along with certain other investment vehicles, 'remain a vital component of the Government's strategy to support investment' and that the UK government 'is confident that they will continue to encourage substantial investment into small companies which is vital to our economic recovery' (HM Treasury 2009b).

The apparent importance of the tax benefits to shareholders is evidenced in that almost a quarter of VCT share issues occurred between the beginning of March and 5 April, late in the fiscal year, reducing uncertainty over individuals' tax positions and marginal tax rates, and also minimising financing costs. Based on a survey of 496 VCT investors, 'the single most

Table 1. VCT issues in fiscal years 1995–96 to 2008–2009.

	New issues		Further issues		Total	
Fiscal year	Number	Proceeds (£m)	Number	Proceeds (£m)	Number	Proceeds (£m)
VCTs with five-year required holding period						
1995–96	Split not reported				10	138.6
1996–97	Split not reported				4	30.2
1997–98	4	33.6	10	7.3	14	40.9
1998–99	7	83.2	66	75.3	73	158.6
1999–2000	8	77.1	91	147.3	99	224.4
VCTs with three-year required holding period						
2000–2001	17	193.4	112	189.5	129	382.9
2001–2002	13	66.4	200	156.5	213	222.8
2002–2003	2	7.5	179	181.6	181	189.0
2003–2004	0	0.0	181	61.5	181	61.5
2004–2005	21	80.6	244	295.6	265	376.2
2005–2006	24	116.0	369	618.3	393	734.3
2006–2007	11	90.7	155	299.8	166	390.5
2007–2008	10	53.6	130	141.3	140	194.9
2008–2009	8	40.7	162	139.3	170	180.0
Total	125	842.8	1899	2313.3	2038	3324.8

Sources:
Primary Market Fact Sheet, various months, London Stock Exchange (re: 1995–96 and 1996–97).
New Issues and IPOs Summary, London Stock Exchange (re: 1997–98 onwards).
Further Issues Summary, London Stock Exchange (re: 1997–98 onwards).

attractive feature' of the scheme is the income tax relief based on the initial subscription (41% of investors) followed by the CGT deferral (23% of investors); whereas the income tax exemption on dividends and the CGT exemption on disposal of shares in VCTs were described as 'the single most attractive feature' of VCTs by 4 and 18% of investors, respectively (PACEC 2003).

3. Valuation of VCT investment relief

We turn now to the formulation of a theoretical model for valuation of investment relief. Consider an individual investor, UK resident for taxation purposes, who subscribes amount I in a VCT at time t_0 during fiscal year FY_0, on which amount he/she expects income tax relief at rate T_0.

The value of investment relief is not certain to the investor until the end of the required holding period since, for example, the investor's circumstances may change and he or she may become a distressed seller. Suppose that:

(1) the risk-free rate is f per time period;
(2) personal taxation payable in respect of fiscal year FY_i is due at time t'_i (in the UK, personal taxation is payable by 31 January following the fiscal year to which the tax relates);
(3) the rate of interest upon tax 'clawed back' in respect of tax reliefs previously enjoyed but, retrospectively, no longer allowable is c per period (simple interest, as under tax legislation); and
(4) the rate per period which represents the discount rate for risk appropriate to investment relief is r.

The cash flow benefit of investment relief is, therefore, IT_0, to be enjoyed at time t'_0. The value of this investment relief to the investor in the period before he/she receives the cash flow benefit is the expected benefit appropriately discounted. In the period after receiving the cash flow benefit, but whilst still within the required holding period, the value is the potential liability for overdue tax (i.e. the cash outflow which will be suffered should the VCT holding be sold).[10] Once beyond this holding period, the value disappears.

The VCT subscriber, however, might divest the holding (or part thereof) before the end of the required holding period for a price which is below the original subscription price. In such a case the 'clawback' of investment relief is restricted to divestment proceeds at the income tax relief rate previously enjoyed, plus interest. So in the period between point of cash flow benefit and end of the required holding period, the valuation of investment relief is not based, necessarily, on the amount originally invested, I; but, rather, on the lesser of this and the bid price, P_{bid}, at the time of divestment; that is, on $\min(I, P_{\text{bid}})$.

More formally, the value of investment relief, which we denote VIR, is as follows over three periods (period from point of investment up to point of cash flow benefit; period between point of cash flow benefit and end of the required holding period; and period from end of the required holding period):

$$VIR = \left\{ \begin{array}{ll} \frac{IT_0}{(1+f)^{\{t'_0-t\}}(1+r)^{\{t_0+NY-t\}}} & \text{for } t \leq t'_0 \\ \min(I, P_{\text{bid}})\frac{T_0(1+c\{t-t'_0\})}{(1+r)^{\{t_0+NY-t\}}} & \text{for } t'_0 < t < t_0+NY \\ 0 & \text{for } t \geq t_0+NY \end{array} \right\} \tag{1}$$

where $\{b - a\}$ represents the number of discounting/compounding periods from time point a to time point b (so, for example, $\{t'_0 - t\}$ represents the number of days from point t to the point of enjoyment of the cash flow benefit of investment relief); Y represents the number of discounting/compounding periods in a year; and N represents the length in years of the required holding period. Notice that in the period prior to t'_0 no adjustment is made in respect of restricted clawback, since there is a zero assumed clawback during this period (the investor is assumed not to have claimed/enjoyed the cash benefit of investment relief). This leads to the profile of investment relief valuation over time as shown in Figure 1 (which, for simplicity of profile, assumes that the bid price is always in excess of or equal to the initial subscription price). In the figure, the height of the profile at time t_0 (vertical axis intercept) represents the value of investment relief, according to the above model, at the point of investment in the VCT.

The middle section of Model (1) may be rewritten to separate out the limitation in VIR attributable to P_{bid} falling below I, decomposing VIR into (additive) parts $VIRA$ ('full' VIR) and $VIRB$ as follows:[11]

$$VIR = VIRA + VIRB \qquad \text{for } t'_0 < t < t_0+NY$$

where

$$VIRA = I\frac{T_0(1+c\{t-t'_0\})}{(1+r)^{\{t_0+NY-t\}}} \tag{2}$$

$$VIRB = (P_{\text{bid}} - I)\frac{T_0(1+c\{t-t'_0\})}{(1+r)^{\{t_0+NY-t\}}} \qquad \text{if } P_{\text{bid}} < I;\ VIRB = 0 \text{ otherwise.}$$

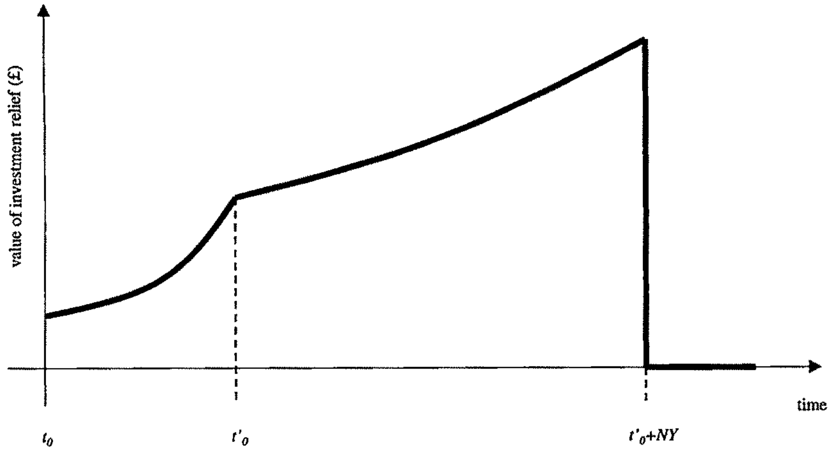

Figure 1. Profile of valuation of investment relief over time.

We now consider what the proceeds of the sale are likely to be in the context of the market maker's bid or offer prices. The 'standard market maker's spread' covers the market maker's transaction costs, adjustment for operational risk; normal profits, etc. The market maker must post bid and offer prices at which he/she is prepared to trade. Faced with a buy order, the market maker must obtain shares and cannot, in the normal course, rely upon finding a financially distressed seller willing to part with his VCT shares without being recompensed for the value of investment relief. Therefore, the offer (as relative to the bid) price will include not only standard market maker's spread, but also a valuation of investment relief. Conversely, the market maker's bid price reflects the fact that he anticipates selling VCT shares onwards on the secondary market to an investor who will not be able to enjoy, and therefore does not value, investment relief.

The valuation of the market maker's bid–offer spread (which we can observe) follows from the above as

$$VIR + \textit{standard market maker's spread}. \tag{3}$$

A further factor to impact upon the theoretical model might be the valuation of roll-over relief available to VCT subscribers. This may also be valued, along with investment relief, within the overall market maker's spread, and abstracting from this may mean that Model (3) underestimates market maker's bid–offer spread. Roll-over relief value is, however, highly investor specific and difficult to estimate. It is also likely to be at least an order of magnitude lower than the value of investment relief (being the discount rate in respect of payment deferral applied to a tax rate in turn applied to a principal sum).

4. Data, hypotheses and methodology

4.1 *Data-set*

The determination of the data-set was influenced by the necessity for sufficient within-VCT-required-holding-period data points. For each VCT, such points commence approximately 10 months after the end of the tax year in which the VCT is established.

The entire population of VCT shares which had been listed up to and including January 2008 was extracted from the *Primary Market Fact Sheet* published monthly by the London Stock

Exchange, double checked against TrustNet, Reuters and Datastream databases. This provided a sample of 137 VCT shares.[12]

For every LSE-traded instrument for each VCT in the sample, all available daily data from 27 August 1996 to 25 March 2008 (inclusive) for market maker's closing ask price (which we denote *PA*), market maker's closing bid price (*PB*), number of customer bargains and number of shares traded in customer bargains were obtained direct from the London Stock Exchange, through bespoke interrogation of LSE databases by LSE staff.[13]

Although VCTs have a number of unique characteristics, there are some financial instruments which invest in similar areas and are listed. Two comparator samples of listed investment trust stocks were selected by searching the TrustNet database: searching for 'UK Venture/Development Capital' investment trusts yielded 15 trusts; and searching for 'UK Equity Growth' investment trusts yielded 27 trusts. All available daily data items as above were collected for these comparator samples.

For each sample VCT, its listing date was established from the LSE *Primary Market Fact Sheets* and the date of the end of the required holding period deduced. Where multiple allocations of a single VCT share class were made, the date of the first listing was taken as the subscription date in order to maintain an assumption that market makers are rational and would not wish to under-value the spread; and where a single VCT had multiple LSE-listed shares, the first subscribed was retained in the VCT sample. Where a single comparator had multiple LSE-listed shares, that share with the longest time series of observations available was retained in the comparator sample.

For each sample VCT and comparator, the price spread was calculated for each day upon which bid and ask price data was collected:

$$SPREAD_t = PA_t - PB_t. \tag{4}$$

The samples were then trimmed of observations where either *PA* or *PB* was zero, or where *SPREAD* was negative (i.e. observations with no economic rationale). Further, the comparator samples were trimmed of observations where *PB* was less than one pence.[14] The final VCT sample comprised 108 VCT shares, with an aggregate of 148,628 daily observations for *SPREAD*; the venture/development capital comparator sample comprised 15 shares with an aggregate of 26,442 daily observations for *SPREAD*; and the equity growth comparator sample comprised 27 shares with an aggregate of 44,489 daily observations for *SPREAD*.[15]

4.2 *Hypotheses*

The special taxation treatments associated with VCTs, and the 6 April 2000 non-retrospective reduction in required holding period from five years, provide a context in which we may formulate and test hypotheses concerning the impact of tax considerations on valuation and market behaviour. The null hypothesis in each case is one of no such impact.

Given valuation of investment relief by initial subscribers, we hypothesise as follows:

> *Hypothesis A*: The bid–ask spread of VCTs within the required holding period is higher than that for conventional investment trusts.

Since investment relief is forfeited if a subscriber sells their VCT holding within the required holding period, and trades in this period are, therefore, likely to be infrequent:

> *Hypothesis B*: The volume of VCT shares traded within the required holding period is lower than that for conventional investment trusts.

Since investment relief is certain for the subscriber as from the end of the required holding period:

> *Hypothesis C*: The bid–ask spread of VCTs falls immediately at the end of the required holding period, and remains at lower levels thereafter.

Also since investment relief is certain as from the end of the required holding period, that is, is not forfeited if a subscriber sells their VCT holding, trades are likely to be more frequent after the end of the required holding period than they are within the required holding period:

> *Hypothesis D*: The volume of VCT shares traded after the end of the required holding period is higher than during the required holding period.

From our modelling in the previous section, and focusing upon the magnitude (rather than merely the existence) of a pricing effect:

> *Hypothesis E*: The bid–ask spread of VCTs includes a valuation of investment relief which is characterised by the theoretical modelling in the previous section.

At the date of subscribing in a VCT the present value of the conditional investment relief will be higher the shorter the required holding period, because of the discounting process; and given a shorter required holding period, *ceteris paribus*, the valuation of investment relief during the early life of a VCT will be higher:

> *Hypothesis F*: The bid–ask spread over the first three years of the required holding period of VCTs subscribed prior to the reduction in required holding period (from five to three years) is less than the bid–ask spread over the required holding period of VCTs subscribed after the reduction.

4.3 *Methodology*

We commence by observation of the evolution of the mean *SPREAD* variable for VCTs in relation to the period to/since the end of the required holding period; and test for a structural break at the end of the required holding period as suggested by our hypotheses C and E.

Next, we consider in more detail descriptive statistics upon spread and volume data for our samples, segmented in various ways, and undertake comparison of means between various subsamples. This includes descriptive statistics and comparable estimates for our comparator samples: although we may not assume that the comparators provide a perfect control, they are sufficient for the limited objective of comparing the general size of spreads and the amount of trading activity.

We then undertake regression analysis aiming to model *SPREAD*, subsuming valuation of investment relief per our theoretical model. The objective of this analysis is to examine whether or not VCT spread evolves over the course of the required holding period in the manner anticipated and also whether or not the spread for VCTs is influenced by other factors in a manner similar to that for other stocks/investment vehicles. This section now continues with discussion of development of our sample for regression purposes and of development of a reasonable, estimable regression model.

The value of investment relief variable *VIR* was computed by reference to the model developed in the previous section. This describes the theoretical valuation of the investment relief, including adjustments for the rate of interest applied on overdue (clawed back) tax.

We must account also for other factors which may further affect the bid–ask spread. Stoll (1989) decomposes the spread on stocks into three factors: those related to adverse information, to the costs of holding inventory and to costs of processing orders. This is corroborated by Glosten (1987), who decomposes the spread into portions attributable to information asymmetry and 'other' elements (encompassing the factors of Stoll). Our estimates more closely follow the approach of Atkins and Dyl (1997), who do not include an adverse information effect in their estimates of the spread. The existence of and ability to exploit informational advantages in VCTs is theorised to be relatively small. The directors of the VCT may be in a position to exploit informational advantages being better aware of the holdings of the VCT. Directors' stockholdings as disclosed in various VCT annual reports are, however, typically very small and change only very rarely. We therefore include only factors related to inventory and processing costs in the empirical model.

Atkins and Dyl (1997) model spread as

$$SPREAD_t = \alpha + \beta_1 MVAL_t + \beta_2 VRET_t + \varepsilon_t \tag{5}$$

where *MVAL* represents market value, *VRET* represents the variance of returns and ε is a stochastic error term. Atkins and Dyl, modelling *SPREAD* as the first stage in a two-stage estimation of holding period, and facing issues of simultaneity, also include a lagged *SPREAD* as an instrumental variable. It is inappropriate, however, to include lagged *SPREAD* in our formulation: we proceed below to add *VIR* as an independent variable, whose generating process has a significant autoregressive element; the inclusion of lagged *SPREAD* would, therefore, conflate with *VIR*, and bias the estimated coefficients. Further, Atkins and Dyl estimated their model in a cross-sectional and time series context, whereas we employ our final model to individual VCT time series.

The greater the market value of the firm, the greater the assumed depth of the market and, consequently, the lower the inventory costs (e.g. Amihud and Mendelson 1988). Consequently, the expected sign on the coefficient β_1 is negative. The higher the variance of returns the higher the risk associated with holding the stock and the greater the inventory costs. Therefore, the expected sign on coefficient β_2 is positive.

This model needs adaptation for our purposes because few VCTs are particularly large and the depth of the market is expected to change more with the performance of the VCT since inception than with the market value of the firm. The increased flows into high performing managed funds are well documented in the literature (see, e.g. Sirri and Tufano 1998). Therefore, price is taken as a proxy for willingness to buy and hence the depth of the market. The variance of the stock over the previous 30 days is included as a measure of inventory costs, after Atkins and Dyl. Where available in our data-set, other measures of market depth are included in the form of the number and volume of customer bargains in the previous 30 days. This gives estimable models as follows:

$$SPREAD_t = \alpha + \beta_1 VIR_t + \beta_2 PB_t + \beta_3 VB_t + \beta_4 BAR_t + \beta_5 VOL_t + \varepsilon_t \tag{6}$$

where *VIR* represents the valuation effect of investment relief based upon our theoretical model; *PB* bid price; *VB* variance of the bid price over the previous 30 days (i.e. $t - 30$ to $t - 1$); *BAR* the number of customer bargains over the previous 30 days; and *VOL* the number of shares traded in customer bargains over the previous 30 days.

VIR is calculated from Expression (1) with the following assumptions and substitutions: t'_i in respect of any fiscal year FY_i is 31 January in the fiscal year immediately following (this being the due date for personal taxation in the UK, and the rational payment date for taxpayers in a net payment position); T_i is 20 or 40%, according to fiscal year, as per VCT taxation regulation; c over relevant periods is as obtained from HM Revenue and Customs; and discount rate

$r = 4\%$ p.a. In order to assess sensitivity of results to the value adopted for r, our estimations are repeated using $r = 2$, 8 and 16% in the calculation of *VIR*.

In this model, the expected sign of the *VIR* coefficient is positive, and that of the *PB* coefficient is negative. There is no firm sign expectation concerning the coefficient of *VB*: although increasing levels of variability are generally associated with increased inventory costs and, therefore, higher spreads, they might indicate a more active market and a resulting decrease in required spread. Neither are there firm expectations concerning the coefficients of *BAR* and *VOL*: increases in these variables are normally associated with increasing depth of market and, thus, decreasing spread, but, in the particular context of this paper, the occurrence of trades might stimulate market makers to increase spread.

We allow for a difference response to 'full' *VIR* and its reduction attributable to bid price falling below initial subscription price by replacing the *VIR* variable of Expression (6) with its *VIRA* and *VIRB* components, yielding a second estimable model as follows:

$$SPREAD_t = \alpha + \beta_1 VIRA_t + \beta_2 VIRB_t + \beta_3 PB_t + \beta_4 VB_t + \beta_5 BAR_t + \beta_6 VOL_t + \varepsilon_t \qquad (7)$$

where *VIRA* and *VIRB* are calculated from Expression (2), with assumptions, substitutions and estimated coefficient sign expectations as above (the expected sign of both the *VIRA* and *VIRB* coefficients is positive).

As discussed above, the VCT secondary market is relatively illiquid and this is reflected in a low level of variation in the spread of a number of VCTs. In order to have sufficient variation in the dependent variable, our regression analysis excludes VCTs with less than 30 changes in the spread, reducing our sample to 17 'active' VCT shares.

Before estimation of the regressions, we must be satisfied as to the time series properties of the variables. Many financial time series follow a random walk (or test as such) and this may be true of our variables. To evaluate the possibility that the variables are nonstationary, Augmented Dickey–Fuller (ADF) tests were conducted for all the dependent and independent variable time series of the 17 active VCTs.[16] The results of ADF testing may be varied by, for example, variation in the number of lags employed; but the overall picture which emerged from our testing was one of widespread inability to reject the ADF null of nonstationarity (at 5% significance or better) in the *VIRA*, *VIRB* and *PB* series; and rejection of the null of nonstationarity for all but one of the *VB* and *VOL* time series and the majority of *SPREAD* time series. Had the tested order of integration been consistently $I(1)$ or higher for all the dependent and independent variables, the common and straightforward solution would have been to estimate our models in first differences; since we are principally interested in the behaviour of the spread over the required holding period so a short-run model is feasible. In the present case, where we have stationarity in the dependent variable, but some independent variables stationary and others nonstationary, we must employ an equally straightforward but less often used model variation: taking first differences of the nonstationary variables, whilst retaining the stationary variable in levels:

$$SPREAD_t = \alpha + \beta_1 \Delta VIR_t + \beta_2 \Delta PB_t + \beta_3 VB_t + \beta_4 BAR_t + \beta_5 VOL_t + \varepsilon_t \qquad (8)$$

$$SPREAD_t = \alpha + \beta_1 \Delta VIRA_t + \beta_2 \Delta VIRB_t + \beta_3 \Delta PB_t + \beta_4 VB_t + \beta_5 BAR_t + \beta_6 VOL_t + \varepsilon_t. \qquad (9)$$

These variations in model specification do impact on interpretation of the magnitude of the estimated coefficients, but, crucially, not their expected sign.

Finally, we present and discuss plots of *SPREAD* and *VIR* variables for each of the 17 'active' VCTs.

5. Results

5.1 *Observation and testing for a structural break*

Figure 2(a) shows a plot of mean VCT spread against number of days to/since the end of the required holding period ('relative day'); and Figure 2(b) shows mean VCT spread expressed as

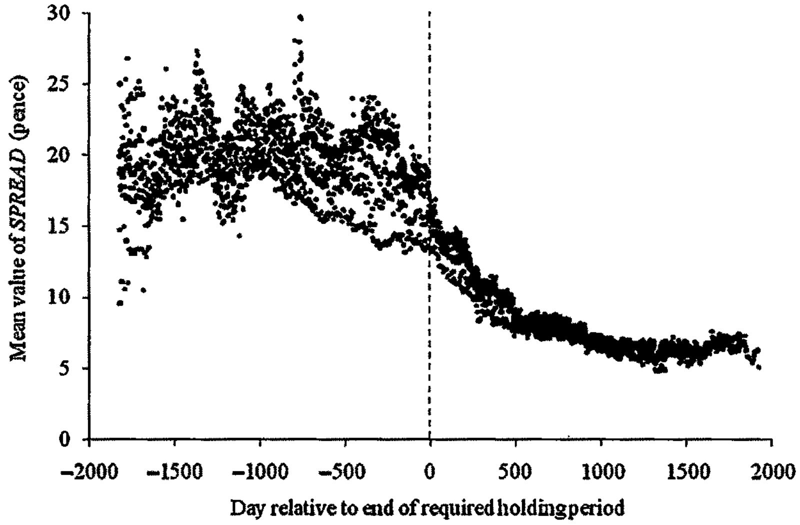

Figure 2(a). Mean value of *SPREAD* against day to/since end of RHP.
Note: Chow test for structural break at end of RHP: $F(2,3507) = 1630.9$ (significant at better than 1%).

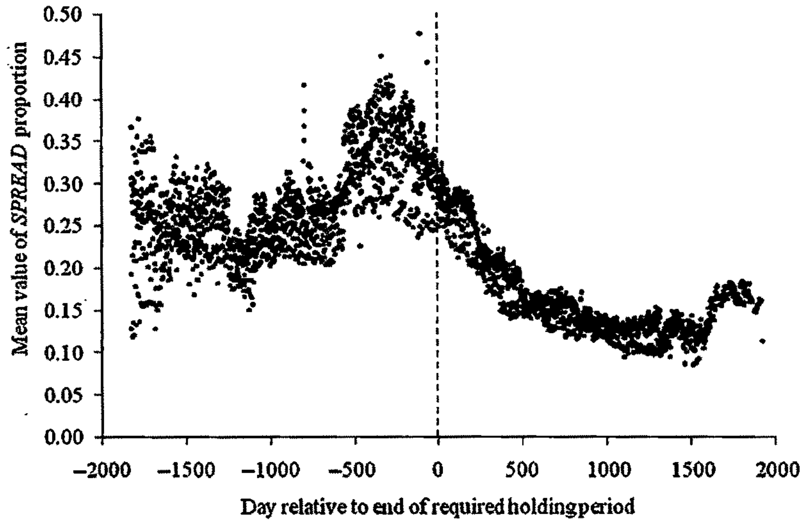

Figure 2(b). Mean value of *SPREAD* as proportion of bid against day to/since end of RHP.
Note: Chow test for structural break at end of RHP: $F(2,3507) = 2136.7$ (significant at better than 1%).

a proportion of bid price, again by relative day. Points are only plotted where data on 10 or more of our VCT sample are available to contribute to the mean for the relative day, in order that a small number of VCTs (or VCT market makers) may not dominate the profile. This leaves 3511 plot points in each figure, spanning the period from five years prior to the end of the required holding period, to a little over five years after.

In both Figures 2(a) and (b), there is a relatively wide scatter of points in the period up to the end of the required holding period, which tightens considerably after the end of the required holding period. Average VCT spread, with spread being measured in either absolute terms or as a proportion of bid price, appears to be higher prior to the end of the required holding period than after that point, albeit there is no discrete step at the end of the required holding period. Chow tests confirm a structural break in both sets of data at the end of the required holding period (in both cases at higher than the 1% level of significance).[17]

5.2 *Descriptive statistics and comparisons*

Panel A of Table 2 gives summary statistics upon the mean value of the *SPREAD* variable for our VCT and comparator samples.[18] The statistics are segmented between 'all periods', then 'prior to end of required holding period' and 'after end of required holding period' (the last two being pertinent only to the VCT sample). Panels B and C of Table 2 follow with descriptive statistics upon the mean value of *SPREAD* as a percentage of bid price, and mean number of customer bargains per day. Table 3 shows the results of pertinent comparison-of-mean tests.

The mean absolute spread for all VCTs within a five-year required holding period is 21.377 pence, with daily spread ranging between 1 and 550 pence; and for VCTs within a three-year required holding period the mean absolute spread is 17.719 pence, with spread ranging from 1 to 100 pence. By contrast, and in line with expectations under hypotheses A and E, the UK venture/development investment trust sector has a smaller mean spread of 10.888 pence over the same period. For UK growth investment trusts, the mean spread is smaller still, as is the standard deviation and range. Since there are rather more growth than venture/development investment trusts within our sample, combining the comparator samples results in statistics more closely resembling growth investment trusts. In terms of mean spread as a proportion of bid price, the difference between the two comparator samples is very small as compared to the difference between either one of them and the VCT sample; and the sense and significance of the results shown later in Table 3 (in respect of both spread and trading volume) are unaffected by taking comparisons of VCTs with either comparator sample alone instead of with the combined comparators.

We expect the spread on VCTs to be larger during the required holding period (as compared to beyond it), in line with hypotheses C and E, and this confirmed by the lower half of Table 2, Panel A where the mean spreads post required holding period for VCTs with five-year and three-year required holding periods are, respectively, 8.129 and 9.608 pence; compared with 21.337 and 17.719 pence, respectively, during the required holding period.

The price of our trusts are not constant over the sample period and this might naturally raise the concern that an interpretation of any differences in the absolute spreads will be misleading where market makers set spreads with regard, to some extent or other, of percentage of instrument value. Therefore, descriptive statistics upon spreads as a proportion of bid price are calculated and presented in Panel B of Table 2. Very similar conclusions may be drawn from this panel as are drawn from Panel A: we note that the spreads for VCTs are considerably larger than those for our comparator samples (consistent with hypotheses A and E); and that the spread for VCTs falls when the end of their required holding period is reached (consistent with hypotheses C

Table 2. Descriptive statistics.

	Mean	SD	Min	Max	*n*
Panel A: SPREAD in pence					
All periods					
VCTs with a five-year required holding period	15.409	22.367	0.25	550.00	77,849
VCTs with a three-year required holding period	14.773	10.653	0.25	100.00	70,779
All VCTs	15.106	17.781	0.25	550.00	148,628
Comparator sample: UK venture/development	10.888	15.817	0.50	100.00	26,442
Comparator sample: UK growth	6.976	12.260	0.25	90.00	48,489
All comparators	8.356	13.749	0.25	100.00	74,931
Prior to end of required holding period					
VCTs with a five-year required holding period	21.377	28.270	1.00	550.00	42,781
VCTs with a three-year required holding period	17.719	11.089	1.00	100.00	45,069
All VCTs	19.500	21.345	1.00	550.00	87,850
After end of required holding period					
VCTs with a five-year required holding period	8.129	6.257	0.25	50.00	35,068
VCTs with a three-year required holding period	9.608	7.415	0.25	40.00	25,710
All VCTs	8.755	6.810	0.25	50.00	60,778
Panel B: SPREAD as a proportion of bid price					
All periods					
VCTs with a five-year required holding period	0.240	0.344	0.0067	9.00	77,849
VCTs with a three-year required holding period	0.235	0.316	0.0030	6.00	70,779
All VCTs	0.238	0.331	0.0030	9.00	148,628
Comparator sample: UK venture/development	0.056	0.101	0.0004	1.19	26,442
Comparator sample: UK growth	0.042	0.132	0.0006	6.00	48,489
All comparators	0.047	0.122	0.0004	6.00	74,931
Prior to end of required holding period					
VCTs with a five-year required holding period	0.302	0.435	0.0106	9.00	42,781
VCTs with a three-year required holding period	0.264	0.361	0.0101	6.00	45,069
All VCTs	0.283	0.399	0.0101	9.00	87,850
After end of required holding period					
VCTs with a five-year required holding period	0.165	0.149	0.0067	2.50	35,068
VCTs with a three-year required holding period	0.184	0.206	0.0030	1.20	25,710
All VCTs	0.173	0.176	0.0030	2.50	60,778
Panel C: Customer bargains per day					
All periods					
VCTs with a five-year required holding period	0.218	0.821	0	74	74,345
VCTs with a three-year required holding period	0.145	0.584	0	40	70,779
All VCTs	0.183	0.716	0	74	145,124
Comparator sample: UK venture/development	2.888	4.276	0	79	24,517
Comparator sample: UK growth	6.477	9.378	0	206	44,388
All comparators	5.200	8.131	0	206	68,905
Prior to end of required holding period					
VCTs with a five-year required holding period	0.110	0.807	0	74	39,277
VCTs with a three-year required holding period	0.030	0.207	0	6	45,069
All VCTs	0.067	0.573	0	74	84,346
After end of required holding period					
VCTs with a five-year required holding period	0.340	0.820	0	31	35,068
VCTs with a three-year required holding period	0.349	0.894	0	40	25,710
All VCTs	0.343	0.852	0	40	60,778

and E). Our theoretical model also suggests that the VCTs with a three-year required holding period are, *ceteris paribus*, likely to have a higher spread than that in the earlier years of the required holding period of those VCTs with a five-year required holding period. This, hypothesis F, is supported by a mean proportion spread for VCTs in the first three years of a five-year required

Table 3. Comparison of means.

	Difference in mean	Hypothesised sign	Associated hypotheses	*t*-statistic	Sig.
Panel A: Mean value of SPREAD in pence					
VCTs with five-year RHP: within RHP vs. beyond RHP	13.247	+ve	C, E	94.15	*
VCTs with three-year RHP: within RHP vs. beyond RHP	8.111	+ve	C, E	116.26	*
Panel B: Mean value of SPREAD as a proportion of bid price					
VCTs with five-year RHP: within RHP vs. beyond RHP	0.137	+ve	C, E	61.16	*
VCTs with three-year RHP: within RHP vs. beyond RHP	0.080	+ve	C, E	37.59	*
VCTs within RHP: with five-year RHP[a] vs. with three-year RHP	−0.010	−ve	F	−3.52	*
VCTs within five-year RHP vs. comparators	0.255	+ve	A, C, E	118.59	*
VCTs within three-year RHP vs. comparators	0.217	+ve	A, C, E	123.62	*
All VCTs within RHP vs. comparators	0.235	+ve	A, C, E	166.09	*
VCTs beyond five-year RHP vs. comparators	0.117	n/a	n/a	129.08	*
VCTs beyond three-year RHP vs. comparators	0.137	n/a	n/a	100.51	*
All VCTs beyond RHP vs. comparators	0.126	n/a	n/a	149.57	*
Panel C: Mean number of customer bargains per day					
VCTs with five-year RHP: beyond RHP vs. within RHP	0.230	+ve	D	38.37	*
VCTs with three-year RHP: beyond RHP vs. within RHP	0.319	+ve	D	56.39	*
VCTs within five-year RHP vs. comparators	−5.090	−ve	B	−162.91	*
VCTs within three-year RHP vs. comparators	−5.170	−ve	B	−166.83	*
All VCTs within RHP vs. comparators	−5.133	−ve	B	−165.37	*
VCTs beyond five-year RHP vs. comparators	−4.860	n/a	n/a	−155.35	*
VCTs beyond three-year RHP vs. comparators	−4.851	n/a	n/a	−154.14	*
All VCTs beyond RHP vs. comparators	−4.856	n/a	n/a	−155.81	*

[a] Considering observations in the first three years of the RHP (required holding period), for consistency with VCTs with a three-year RHP.
The difference in mean of '*x versus y*' is calculated as $x - y$.
*Indicates significance at the 1% level or better.

holding period being 0.01 lower than that for VCTs with a three-year required holding period (significant at better than 1%; Table 3, Panel B, line 3).

A further topic of interest is whether the volume of trading is relatively small for VCTs within their holding period as compared with after and in comparison to more conventional instruments. Customer bargains per day are chosen as the basis for analysis since we are interested in the influence of tax effects on individuals' decisions (and including market maker bargains would not provide a basis on which to compare the effects of changing tax liability on private shareholders). Table 2, Panel C is in line with expectations and hypotheses B and D: VCTs are very thinly traded during their required holding period, in comparison to VCTs beyond their required holding period and, most markedly, in comparison to our comparator investment trusts. Albeit the data upon comparator samples in this respect is not fully controlled (e.g. number of units in issue or value), the results are, we submit, stark and compelling.

Table 3 presents the results of formal tests of the difference between the means as discussed above. All differences, supporting hypotheses A–F inclusive, are significant at the 1% level. A commentary upon some of the key comparisons follows.

. The first and second rows of Table 3, Panel A present tests of whether the spread for VCTs falls when their five-year or three-year required holding period ends. The differences of 13.247 and 8.111 pence are both of the expected sign and statistically significant at a 1% level. Following the discussion of the statistics in Table 2, comparison of VCTs and our other sampled trusts is more appropriate if undertaken for proportion as opposed to absolute spreads. Table 3, Panel B therefore presents a comparison of the mean proportion spreads. We see in the first and second rows of Table 3, Panel B that proportion spread for VCTs falls when their five-year or three-year required holding period ends (in confirmation of the findings from Panel A, again significant at the 1% level in each case). In the third row of Panel B, we see that the VCTs within a three-year required holding period have a significantly higher mean proportion spread than those with a five-year required holding period.

Since the proportion spreads on our two comparator samples are only marginally different (see Table 2, Panel B), we select the combined comparator sample as a basis for comparison with VCT percentage spreads in Table 3, Panel B. In each comparison, the percentage spread on VCTs is significantly greater than that of the comparators. This finding in isolation may indicate merely that the spread on VCTs is greater than that on more conventional investment trusts because the market is thinner, irrespective of whether the required holding period has ended (and, therefore, market makers require a greater spread to cover higher inventory costs). This possibility is controlled for in our regression analysis and addressed directly in hypotheses C and F.

Panel C of Table 3 provides results of comparisons of the number of VCT customer bargains per day before vs. after the end of their required holding periods; and between VCTs and comparators. Although the mean number of VCT customer bargains is relatively small both before and after the end of their required holding periods, the number per day after the end of the required holding periods is about 3–10 (depending on the VCT subsample chosen) times the number observed before the end of the required holding periods (difference statistically significant at the 1% level). Trading in VCTs is markedly thinner than in the comparator samples, significant at the 1% level, albeit this result is subject to foregoing caveats.

5.3 *Regression estimations*

An earlier section discusses model development. The empirical Models (8) and (9) were estimated for the period from supposed cash benefit of investment relief until the end of the required holding period for each of the 'active' VCTs in our sample by the method ordinary least squares. The relevant period is, for $t'_0 < t < t_0 + NY$, the 'middle section' of Model (1). The estimation results are summarised in Tables 4 and 5. In each estimated model, the coefficients of the regression are jointly significant per the F-statistic.

As regards the independent variables in the models designed to control for standard bid–ask spread, the estimated coefficient of ΔPB is negative in 24 of 34 cases (significant at generally acceptable levels of significance in 14 of these cases); and the estimated coefficient of VB is also positive in 24 of 34 cases (significant in 20 of these cases). These results are consistent with, respectively, the 'depth of market' and 'increased inventory costs' hypotheses set out in Section 4.3 above.

In respect of our focal variables, however, the results are mixed. The estimated coefficient of ΔVIR (Model (8)) is positive in 8 of 17 cases (and significant in only 2 of these cases) and negative in 8 cases (significant in 2). Slightly stronger results to support hypothesis E come from estimation of Model (9), where the estimated coefficient of $\Delta VIRA$ is positive in 14 of 17 cases

Table 4. Estimation of $SPREAD = \alpha + \beta_1 \Delta VIR + \beta_2 \Delta PB + \beta_3 VB + \beta_4 BAR + \beta_5 VOL + \varepsilon$ using OLS for 17 active VCTs.

No.	Const.	ΔVIR	ΔPB	VB	BAR	VOL	Adj. R^2	n	F	DW
1	6.3274 (22.34***)	−4.2373 (−0.40)	0.7812 (0.30)	0.3097 (16.77***)	−0.4469 (−5.95***)	0.0000 (2.97***)	0.29	724	F(5,718) (59.93***)	0.05
2	11.1054 (31.25***)	0.8389 (0.46)	−0.2147 (−1.96**)	0.0036 (1.04)	0.2659 (3.32***)	0.0000 (0.46)	0.08	757	F(5,751) (13.73***)	0.03
3	7.9409 (60.39***)	1.5519 (0.48)	−0.4632 (−0.63)	−0.0002 (−0.04)	0.0256 (0.94)	0.0000 (−11.18***)	0.16	856	F(5,850) (34.16***)	0.15
4	8.0965 (73.26***)	1.8008 (0.49)	−0.6607 (−0.74)	−0.0164 (−1.02)	−0.0742 (−2.76***)	0.0000 (−2.29**)	0.08	856	F(5,850) (16.07***)	0.20
5	7.6556 (58.96***)	−4.4562 (−0.69)	0.7921 (0.55)	−0.0686 (−2.03**)	0.0558 (1.89*)	0.0000 (−3.33***)	0.02	856	F(5,850) (3.74***)	0.05
6	15.8393 (34.25***)	0.8610 (0.13)	−0.6487 (−0.45)	0.3463 (26.89***)	−0.6940 (−8.17***)	0.0000 (−1.25)	0.48	856	F(5,850) (157.77***)	0.06
7	10.5641 (35.58***)	7.9912 (1.41*)	−2.1481 (−1.55*)	0.1915 (11.60***)	0.2677 (3.89***)	−0.0001 (−9.24***)	0.21	852	F(5,846) (47.21***)	0.08
8	21.4314 (29.33***)	5.1395 (1.15)	−1.8848 (−2.25**)	0.2168 (16.59***)	5.1649 (10.61***)	−0.0002 (−4.77***)	0.36	856	F(5,850) (95.76***)	0.03
9	7.8545 (58.47***)	−1.2083 (−1.95**)	−0.0160 (−0.43)	0.0021 (3.40***)	−0.0494 (−3.22***)	0.0000 (−2.32**)	0.03	855	F(5,849) (6.17***)	0.26
10	7.2440 (68.28***)	−1.6771 (−0.46)	0.0078 (0.01)	0.1981 (10.98***)	−0.0855 (−1.69*)	0.0000 (−2.84***)	0.11	1051	F(5,1045) (26.98***)	0.08
11	6.3559 (34.35***)	−3.1116 (−0.60)	0.2012 (0.18)	−0.0095 (−0.31)	0.0115 (0.35)	0.0000 (0.33)	0.01	802	F(5,796) (2.78**)	0.07
12	13.9393 (28.10***)	−0.3193 (−0.30)	0.1337 (5.04***)	0.0013 (5.57***)	0.1350 (7.43***)	−0.0001 (−7.37***)	0.62	958	F(5,952) (307.52***)	0.33
13	10.3084 (42.77***)	−1.5934 (−0.32)	0.0002 (0.00)	0.0481 (5.52***)	0.4040 (5.27***)	0.0000 (−4.34***)	0.08	1039	F(5,1033) (20.15***)	0.09
14	9.2912 (62.12***)	−2.9236 (−3.63***)	−0.0076 (−0.18)	0.0001 (0.09)	−0.0976 (−4.54***)	0.0000 (2.49**)	0.06	1040	F(5,1034) (14.33***)	0.09
15	10.4576 (67.64***)	0.3762 (0.55)	−0.1683 (−2.70***)	−0.0003 (−0.20)	0.8075 (27.39***)	0.0000 (−5.29***)	0.51	963	F(5,957) (200.65***)	0.20
16	13.1326 (30.34***)	−0.9150 (−0.51)	−0.1911 (−1.54*)	0.0595 (21.06***)	2.7257 (31.08***)	−0.0001 (−16.93***)	0.76	974	F(5,968) (630.97***)	0.16
17	4.4066 (43.00***)	17.1149 (3.64***)	−3.7912 (−4.08***)	0.0478 (5.16***)	−0.1474 (−2.77***)	0.0000 (−1.17)	0.08	1052	F(5,1046) (19.26***)	0.12

*Denotes significance at the 10% level; **5% level; and ***1% level.

Table 5. Estimation of $SPREAD = \alpha + \beta_1 \Delta VIRA + \beta_2 \Delta VIRB + \beta_3 \Delta PB + \beta_4 VB + \beta_5 BAR + \beta_6 VOL + \varepsilon$ using OLS for 17 active VCTs.

No.	Const.	$\Delta VIRA$	$\Delta VIRB$	ΔPB	VB	BAR	VOL	Adj. R^2	n	F	DW
1	6.1692	11.6795	−7.0990	1.4797	0.3091	−0.4477	0.0000	0.29	724	F(6,717)	0.05
	(16.83***)	(0.45)	(−0.62)	(0.53)	(16.72***)	(−5.96***)	(2.98***)			(49.98***)	
2	10.5219	60.1702	0.8951	−0.2212	0.0036	0.2638	0.0000	0.08	757	F(6,750)	0.04
	(19.16***)	(1.41*)	(0.49)	(−2.02**)	(1.04)	(3.29***)	(0.49)			(11.78***)	
3	7.8978	5.7433	1.2570	−0.3961	−0.0003	0.0260	0.0000	0.16	856	F(6,849)	0.15
	(45.93***)	(0.51)	(0.38)	(−0.52)	(−0.06)	(0.95)	(−11.18***)			(28.46***)	
4	8.1087	0.5540	1.9385	−0.6943	−0.0164	−0.0742	0.0000	0.08	856	F(6,849)	0.20
	(53.95***)	(0.05)	(0.50)	(−0.74)	(−1.02)	(−2.76***)	(−2.29**)			(13.38***)	
5	7.5483	6.1223	−6.3963	1.2318	−0.0682	0.0545	0.0000	0.02	856	F(6,849)	0.05
	(40.53***)	(0.42)	(−0.92)	(0.80)	(−2.01**)	(1.84*)	(−3.30***)			(3.22***)	
6	15.7780	7.1523	0.7538	−0.6237	0.3463	−0.6945	0.0000	0.48	856	F(6,849)	0.06
	(24.80***)	(0.16)	(0.12)	(−0.43)	(26.87***)	(−8.16***)	(−1.24)			(131.32***)	
7	10.2945	35.5351	6.4709	−1.7736	0.1904	0.2674	−0.0001	0.21	852	F(6,845)	0.09
	(27.89***)	(1.54*)	(1.12)	(−1.25)	(11.52***)	(3.89***)	(−9.24***)			(39.62***)	
8	19.6848	181.8245	5.1390	−1.8714	0.2168	5.1632	−0.0002	0.36	856	F(6,849)	0.04
	(15.74***)	(1.77**)	(1.15)	(−2.23**)	(16.61***)	(10.61***)	(−4.79***)			(80.47***)	
9	7.7873	5.8191	−1.2210	−0.0152	0.0021	−0.0498	0.0000	0.03	855	F(6,848)	0.27
	(41.41***)	(0.42)	(−1.97**)	(−0.41)	(3.42***)	(−3.24***)	(−2.32**)			(5.18***)	
10	7.3385	−11.9774	−0.9750	−0.1608	0.1978	−0.0836	0.0000	0.11	1051	F(6,1044)	0.08
	(46.79***)	(−0.91)	(−0.26)	(−0.18)	(10.97***)	(−1.66*)	(−2.83***)			(22.59***)	
11	6.1273	21.9077	−5.3728	0.6999	−0.0091	0.0089	0.0000	0.01	802	F(6,795)	0.08
	(25.38***)	(1.23)	(−1.00)	(0.60)	(−0.29)	(0.27)	(0.37)			(2.69**)	
12	14.3363	−45.5775	−0.3102	0.1329	0.0013	0.1351	−0.0001	0.62	958	F(6,951)	0.33
	(19.09***)	(−0.71)	(−0.29)	(5.01***)	(5.55***)	(7.43***)	(−7.36***)			(256.21***)	
13	10.5044	−24.0903	−0.9618	−0.1365	0.0482	0.4045	0.0000	0.08	1039	F(6,1032)	0.09
	(29.96***)	(−0.81)	(−0.19)	(−0.13)	(5.54***)	(5.28***)	(−4.33***)			(16.88***)	
14	9.1997	7.8173	−2.9420	−0.0064	0.0001	−0.0980	0.0000	0.06	1040	F(6,1033)	0.10
	(40.85***)	(0.40)	(−3.65***)	(−0.15)	(0.10)	(−4.56***)	(2.48**)			(11.98***)	
15	10.2665	22.6125	0.3395	−0.1630	−0.0003	0.8073	0.0000	0.51	963	F(6,956)	0.20
	(39.48***)	(0.93)	(0.49)	(−2.60***)	(−0.20)	(27.38***)	(−5.28***)			(167.32***)	
16	13.1210	0.4509	−0.9159	−0.1913	0.0595	2.7257	−0.0001	0.76	974	F(6,967)	0.16
	(20.35***)	(0.01)	(−0.51)	(−1.54*)	(21.04***)	(31.06***)	(−16.91***)			(525.27***)	
17	4.5129	3.9420	18.2484	−4.0130	0.0477	−0.1450	0.0000	0.08	1052	F(6,1045)	0.13
	(31.73***)	(0.30)	(3.78***)	(−4.22***)	(5.15***)	(−2.73***)	(−1.16)			(16.25***)	

*Denotes significance at the 10% level; **5% level; and ***1% level.

(significant in 3 cases) and negative in only 3 cases (none significant); and the estimated coefficient of $\Delta VIRB$ is positive in 8 of 17 cases (significant in only 1) and negative in 9 cases (significant in 2).[19]

A common feature of all the estimated models, however, is very low Durbin–Watson statistic – supporting rejection of the null hypothesis of no first-order serial correlation in the error terms of the estimated models in favour of positive first-order serial correlation. Given the nature of the dependant variable series as discussed in Section 5.4 this is unsurprising – indeed, supports the 'stickiness' finding from inspection of the *SPREAD* data (below). A consequence of this serial correlation in errors, however, is that the standard errors in the estimated models are likely to be suppressed, which would increase the *t* statistics and mean, in turn, that any significance claimed is generous. It is essential, therefore, to re-estimate the models using a procedure designed to control for any autocorrelation in the errors. The Hildreth–Lu procedure is appropriate for this task.[20] The results from re-estimation under Hildreth–Lu are presented in Tables 6 and 7. The Hildreth–Lu procedure allows for an autoregressive structure in the regression errors. As expected, the regressions estimated under Hildreth–Lu show significantly increased R^2 statistics, Durbin–Watson statistics more closely grouped around 2, and estimated error autoregressive adjustment parameters (column '*Rho*' in the tables) is positive and significant in all cases.

Results in respect of our focal variables remain mixed: the estimated coefficient of ΔVIR (Model (8), estimated using Hildreth–Lu) is positive in 5 of 17 cases (significant in 3 of these cases) and negative in 12 cases (significant in 9). Similar results come from estimation Model (9) using Hildreth–Lu, where the estimated coefficient of $\Delta VIRA$ is positive in 6 of 17 cases (although not significant in any case); and the estimated coefficient of $\Delta VIRB$ is positive in 6 of 17 cases (significant in 3 cases). Regarding the estimated coefficients of ΔPB and *VB*, conclusions concerning the 'depth of market' and 'increased inventory costs' hypotheses are maintained.

In order to assess sensitivity of results to the value adopted for *r* in our calculations of *VIR* from Expression (1), our estimations are repeated with *VIR* calculated using, in turn, $r = 2$, 8 and 16% (the foregoing being based on *VIR* calculated with $r = 4\%$ p.a.). Results are essentially as reported above.[21]

The mixed findings from regression analyses warrant further investigation. The next section presents and discusses plots of the data for these cases.

5.4 *Inspection and discussion of plots of SPREAD and VIR*

Figures 3(a)–(c) show three archetype plots of *SPREAD* and *VIR*, chosen to represent the plots of all 17 'active' VCT shares. The figures plot data from the point of investment relief cash flow benefit to the end of the required holding period (i.e. as used in the regression analysis). Eight of our 17 active VCTs give plots of the type in Figure 3(a); 3 of them give plots of the type in Figure 3(b); and 6 of them of the type in Figure 3(c). The plots for all 17 VCTs are not reproduced in the interests of economy, but are available from the authors. Across the figures for all 17 active VCTs, it is apparent that there is a certain 'stickiness' of variable *SPREAD* – to be a whole number of pence, commonly at either 5 or 10 p, and often maintained at the same value for some considerable number of days. This explains readily the strong positive serial correlation seen in the errors of the regressions estimated by basic OLS (and evidenced in the low Durbin–Watson statistics): the dependent variable commonly stays constant for some period, during which the regression estimate of that variable rarely crosses the true value.

Another feature of the figures is that *SPREAD*, although very high by conventional standards,[22] is commonly lower than the value of *VIR* predicted by our theoretical model, as for the plots of eight VCTs of the type shown in Figure 3(a). In the plots for the three VCTs of the type shown in Figure 3(b), we see *SPREAD* lower than *VIR* for the most part of the required

Table 6. Estimation of $SPREAD = \alpha + \beta_1 \Delta VIR + \beta_2 \Delta PB + \beta_3 VB + \beta_4 BAR + \beta_5 VOL + \varepsilon$ using Hildreth–Lu for 17 active VCTs.

No.	Const.	ΔVIR	ΔPB	VB	BAR	VOL	Rho	Adj. R^2	n	F	DW
1	7.6385	0.3329	−0.4386	0.0809	−0.0199	0.0000	0.9882	0.97	723	*F*(6,716)	1.96
	(2.68***)	(0.21)	(−1.14)	(1.95*)	(−0.26)	(1.89*)	(138.35***)			(3742.73***)	
2	15.3921	−0.4565	−0.0341	0.0033	0.1413	0.0000	0.9922	0.98	756	*F*(6,749)	2.17
	(3.00***)	(−2.30**)	(−2.65***)	(1.15)	(3.12***)	(−0.36)	(179.90***)			(5801.24***)	
3	7.3750	2.5673	−0.7545	−0.0016	−0.0257	0.0000	0.9363	0.89	855	*F*(6,848)	2.04
	(15.97***)	(2.89***)	(−3.68***)	(−0.12)	(−0.56)	(−1.43)	(77.60***)			(1100.26***)	
4	7.9544	0.3784	−0.4392	0.0141	−0.0654	0.0000	0.9048	0.83	855	*F*(6,848)	2.05
	(21.38***)	(0.34)	(−1.62*)	(0.34)	(−1.38)	(−1.22)	(61.42***)			(708.71***)	
5	7.5032	2.6951	−0.9525	0.0175	0.0956	0.0000	0.9778	0.96	855	*F*(6,848)	2.01
	(8.60***)	(2.80***)	(−4.47***)	(0.30)	(2.26**)	(−1.58)	(136.69***)			(3079.02***)	
6	14.9883	−2.2705	0.1300	0.0638	0.1482	0.0000	0.9867	0.98	855	*F*(6,848)	1.74
	(3.32***)	(−2.22**)	(0.57)	(2.58***)	(1.27)	(−0.82)	(172.64***)			(5864.18***)	
7	11.1839	−0.0703	−0.1244	0.0605	−0.0873	0.0000	0.9779	0.95	851	*F*(6,844)	2.14
	(6.71***)	(−0.07)	(−0.52)	(1.59)	(−1.28)	(2.74***)	(130.26***)			(2848.82***)	
8	31.2744	4.1648	−1.2591	0.0215	1.6144	0.0000	0.9932	0.99	855	*F*(6,848)	1.61
	(2.44**)	(9.62***)	(−15.39***)	(1.33)	(3.89***)	(−1.35)	(249.35***)			(11,709.06***)	
9	7.6964	−1.0799	−0.0708	0.0000	−0.0340	0.0000	0.8742	0.76	854	*F*(6,847)	2.14
	(18.09***)	(−4.32***)	(−4.12***)	(0.02)	(−0.87)	(0.12)	(51.44***)			(460.66***)	
10	7.1308	−0.4554	−0.2328	0.0826	0.0785	0.0000	0.9639	0.93	1050	*F*(6,1043)	2.09
	(12.12***)	(−0.65)	(−1.42*)	(2.25**)	(1.14)	(−1.22)	(116.65***)			(2487.65***)	
11	6.1396	−4.3560	0.5229	0.0521	0.0754	0.0000	0.9645	0.93	801	*F*(6,794)	1.71
	(7.76***)	(−4.35***)	(2.38***)	(0.85)	(1.25)	(−0.30)	(103.46***)			(1815.09***)	
12	11.8924	−0.8607	−0.0134	0.0002	0.1151	0.0000	0.8867	0.90	957	*F*(6,950)	2.68
	(6.86***)	(−2.18**)	(−1.21)	(0.47)	(3.16***)	(0.33)	(57.29***)			(1481.39***)	
13	11.2361	−2.5440	0.1544	0.0285	−0.1043	0.0000	0.9593	0.92	1038	*F*(6,1031)	2.06
	(9.36***)	(−2.36***)	(0.68)	(1.50)	(−1.04)	(−1.57)	(108.99***)			(2059.56***)	
14	9.1568	−1.9649	−0.0107	−0.0016	−0.0243	0.0000	0.9561	0.92	1039	*F*(6,1032)	2.48
	(12.05***)	(−11.09***)	(−0.91)	(−1.22)	(−0.58)	(1.21)	(102.89***)			(1877.85***)	
15	12.5365	−0.3881	−0.0488	−0.0021	0.1000	0.0000	0.9522	0.92	962	*F*(6,955)	2.05
	(10.85***)	(−1.87**)	(−2.49***)	(−0.43)	(1.13)	(−0.22)	(91.61***)			(1734.63***)	
16	20.0591	−0.3626	−0.1216	0.0124	0.9717	0.0000	0.9742	0.97	973	*F*(6,966)	2.22
	(4.74***)	(−0.75)	(−3.51***)	(1.50)	(5.20***)	(−2.59***)	(131.27***)			(5035.23***)	
17	4.0203	−1.2848	0.1707	−0.0034	0.0859	0.0000	0.9655	0.94	1051	*F*(6,1044)	2.45
	(7.82***)	(−1.38*)	(0.93)	(−0.16)	(1.62)	(−1.34)	(124.43***)			(2584.78***)	

*Denotes significance at the 10% level; **5% level; and ***1% level.

Table 7. Estimation of $SPREAD = \alpha + \beta_1 \Delta VIRA + \beta_2 \Delta VIRB + \beta_3 \Delta PB + \beta_4 VB + \beta_5 BAR + \beta_6 VOL + \varepsilon$ using Hildreth–Lu for 17 active VCTs.

No.	Const.	$\Delta VIRA$	$\Delta VIRB$	ΔPB	VB	BAR	VOL	Rho	Adj. R^2	n	F	DW
1	7.6700	−2.0268	0.8603	−0.5670	0.0806	−0.0197	0.0000	0.9882	0.97	723	F(7,715)	1.96
	(2.69***)	(−0.59)	(0.51)	(−1.35*)	(1.94*)	(−0.25)	(1.88*)	(138.36***)			(3206.29***)	
2	15.4260	−3.7821	−0.4584	−0.0334	0.0033	0.1427	0.0000	0.9922	0.98	756	F(7,748)	2.17
	(3.00***)	(−0.91)	(−2.31**)	(−2.59***)	(1.14)	(3.15***)	(−0.39)	(179.89***)			(4970.23***)	
3	7.3967	0.5190	2.7766	−0.8020	−0.0015	−0.0272	0.0000	0.9364	0.89	855	F(7,847)	2.03
	(15.95***)	(0.19)	(3.00***)	(−3.75***)	(−0.11)	(−0.59)	(−1.38)	(77.64***)			(942.75***)	
4	7.9917	−2.2279	0.7581	−0.5312	0.0144	−0.0681	0.0000	0.9048	0.83	855	F(7,847)	2.05
	(21.35***)	(−0.71)	(0.63)	(−1.83**)	(0.35)	(−1.44)	(−1.21)	(61.41***)			(607.44***)	
5	7.5760	−2.8784	3.8629	−1.2179	0.0184	0.0886	0.0000	0.9781	0.96	855	F(7,847)	1.99
	(8.63***)	(−1.44*)	(3.77***)	(−5.35***)	(0.31)	(2.10**)	(−1.48)	(137.45***)			(2668.95***)	
6	14.9325	1.9510	−2.3544	0.1492	0.0640	0.1509	0.0000	0.9867	0.98	855	F(7,847)	1.74
	(3.30***)	(0.32)	(−2.29**)	(0.65)	(2.59***)	(1.29)	(−0.83)	(172.60***)			(5023.42***)	
7	11.2033	−2.1053	0.0518	−0.1546	0.0607	−0.0865	0.0000	0.9779	0.95	851	F(7,843)	2.14
	(6.72***)	(−0.57)	(0.05)	(−0.63)	(1.60)	(−1.27)	(2.72***)	(130.18***)			(2439.95***)	
8	31.4427	−11.1551	4.1799	−1.2627	0.0219	1.6007	0.0000	0.9932	0.99	855	F(7,847)	1.61
	(2.45**)	(−1.24)	(9.66***)	(−15.44***)	(1.35)	(3.86***)	(−1.29)	(249.68***)			(10,059.44***)	
9	7.7451	−6.3284	−1.0665	−0.0725	0.0000	−0.0335	0.0000	0.8746	0.76	854	F(7,846)	2.14
	(18.07***)	(−1.37*)	(−4.26***)	(−4.20***)	(−0.01)	(−0.86)	(0.14)	(51.50***)			(395.18***)	
10	7.1215	0.4875	−0.5313	−0.2146	0.0831	0.0779	0.0000	0.9639	0.93	1050	F(7,1042)	2.09
	(12.10***)	(0.21)	(−0.73)	(−1.27)	(2.26**)	(1.13)	(−1.21)	(116.60***)			(2130.63***)	
11	6.1447	−5.1248	−4.2645	0.5026	0.0519	0.0764	0.0000	0.9645	0.93	801	F(7,793)	1.71
	(7.76***)	(−1.69**)	(−4.03***)	(2.16**)	(0.85)	(1.27)	(−0.31)	(103.42***)			(1553.99***)	
12	11.8627	2.4279	−0.8627	−0.0133	0.0002	0.1152	0.0000	0.8867	0.90	957	F(7,949)	2.68
	(6.79***)	(0.11)	(−2.18**)	(−1.20)	(0.46)	(3.16***)	(0.33)	(57.27***)			(1268.46***)	
13	11.1826	4.1155	−2.7717	0.2043	0.0283	−0.1052	0.0000	0.9594	0.92	1038	F(7,1030)	2.07
	(9.30***)	(0.73)	(−2.53***)	(0.88)	(1.49)	(−1.05)	(−1.58)	(109.06***)			(1766.33***)	
14	9.2253	−10.1996	−1.9416	−0.0125	−0.0016	−0.0249	0.0000	0.9563	0.92	1039	F(7,1031)	2.49
	(12.09***)	(−2.64***)	(−10.95***)	(−1.06)	(−1.25)	(−0.59)	(1.29)	(103.11***)			(1615.79***)	
15	12.5369	−0.4423	−0.3880	−0.0488	−0.0021	0.1000	0.0000	0.9522	0.92	962	F(7,954)	2.05
	(10.83***)	(−0.07)	(−1.87**)	(−2.48***)	(−0.43)	(1.13)	(−0.22)	(91.56***)			(1485.27***)	
16	20.0929	−4.2012	−0.3615	−0.1214	0.0124	0.9715	0.0000	0.9742	0.97	973	F(7,965)	2.22
	(4.74***)	(−0.32)	(−0.75)	(−3.50***)	(1.50)	(5.20***)	(−2.58***)	(131.23***)			(4311.84***)	
17	3.9900	2.4115	−1.7629	0.2645	−0.0046	0.0869	0.0000	0.9657	0.94	1051	F(7,1043)	2.44
	(7.73***)	(1.08)	(−1.83**)	(1.39*)	(−0.22)	(1.64)	(−1.39)	(124.71***)			(2220.91***)	

*Denotes significance at the 10% level; **5% level; and ***1% level.

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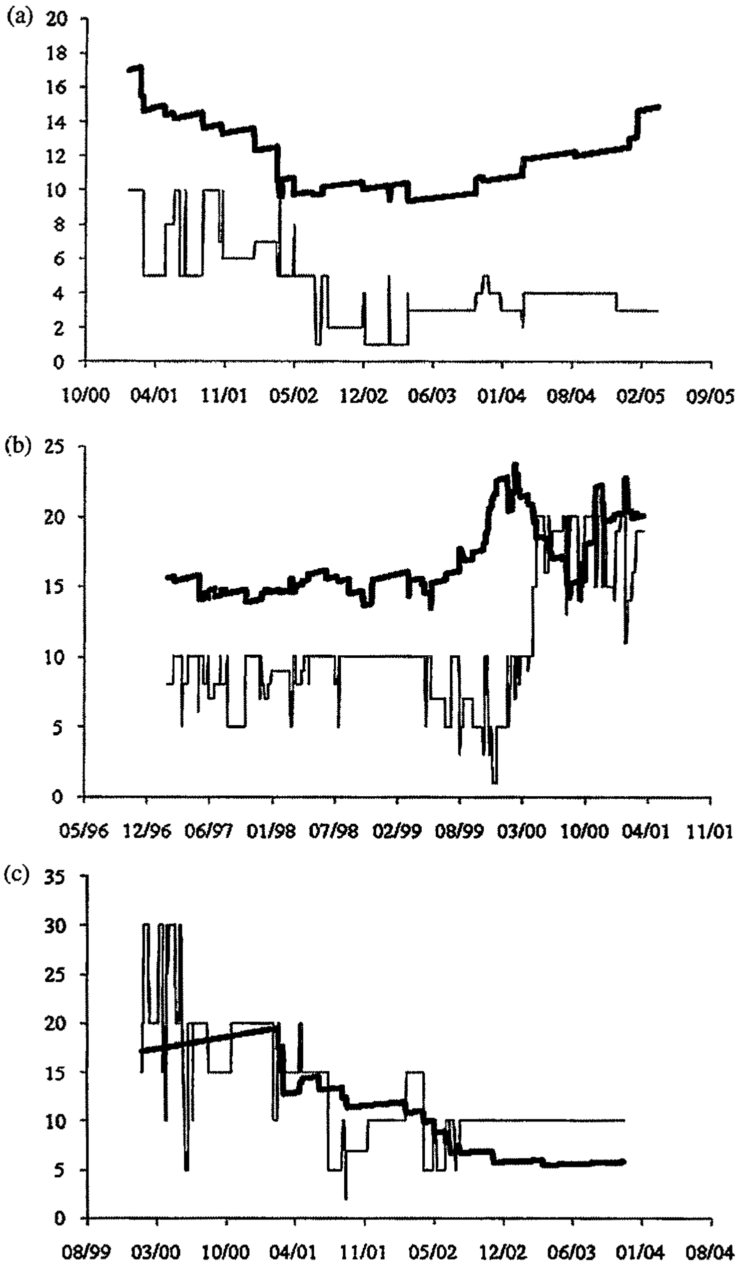

Figure 3. Plot of *SPREAD* and *VIR* for three of 17 'active' VCTs (pence). Data from investment relief cash flow benefit date to end of required holding period (key: *SPREAD* plots in plain; *VIR* plots in bold).

holding period, but jumping up to more closely track *VIR* towards the end of the required holding period. For the six VCTs whose plots are typified by Figure 3(c), we see *SPREAD* tracking *VIR* more closely throughout the required holding period, with *SPREAD* above *VIR* for some considerable periods. This last group is perhaps suggestive that some moving average in *SPREAD* follows *VIR*; but any such moving average could not be applicable to the other groups. What is clear is that there are a variety of behaviours of *SPREAD* in relation to *VIR*; but that *SPREAD* is ever maintained at well above conventional levels.

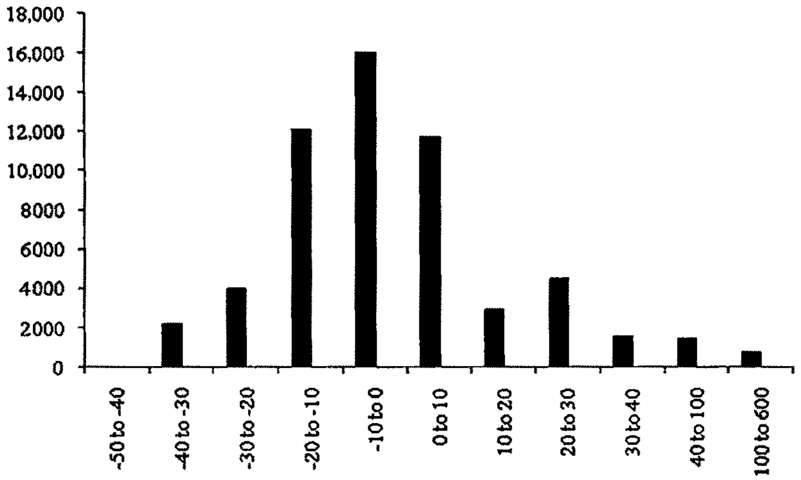

Figure 4. Histogram of deviation of *SPREAD* from *VIR* (pence).

It is also apparent that 10 p was a de facto upper limit on *SPREAD* over substantial periods for a number of the VCTs. Representing some 8–20% of the market value of shares commonly priced in the 50–120 p range, perhaps market makers simply could not conceive of the need for *SPREAD* above 10 p. Indeed, our argument for the inclusion of *VIR* within *SPREAD* (Section 2) led, *inter alia*, to a hypothesis of low trading volume for VCT shares within the required holding period (hypothesis B). This hypothesis is supported by our findings (Section 5.2). The setting of *SPREAD* at an abnormally high level (as also confirmed by our findings in Section 5.2), perhaps not incorporating the level of *VIR* exactly but informed by it, would effectively shut down the trading of VCT shares, forestalling any trades other than those made in extremis (by, for example, distressed sellers) – and protecting VCT market makers from the value loss which would be likely if *SPREAD* were set at more conventional levels.

Drawing back from our sample of 17 active VCTs, and returning to our full sample of 108 VCTs (with an aggregate of 57,242 daily observations within the required holding period), Figure 4 presents a histogram of deviations of *SPREAD* from *VIR*. The deviation of *SPREAD* from *VIR* is seen to cluster around zero; and approximately half of the observations of *SPREAD* are within 10 p of *VIR*. There is a substantial tail to the right, in which some extraordinarily high values of *SPREAD* are seen – which, we submit, can only be the result of over-enthusiastic action to shut down trading by market makers.

Overall in Sections 5.3 and 5.4, we find that *SPREAD*, way above conventional levels, is informed by *VIR*; and that VCT spread responds to factors such as price and volatility in a similar fashion to other instruments. These findings complement those set out in Sections 5.1 and 5.2 to confirm that tax effects are priced into the spread and that price and trading behaviour in the VCT market conforms substantially to theory and associated expectations.

6. Conclusion

This paper documents theoretical and empirical evidence of a lock-in effect arising from the conditional nature of tax incentives provided to increase demand for venture capital trust IPOs. In particular, VCT bid–ask spreads evolve over time in a way that is consistent with investment relief being valued in the share price by the shareholder during the required holding period, after the end of which the spread falls significantly; and/or with market makers setting spread to effectively shut down trading in VCT shares within the required holding period. Evidence of tax effects exists where the spread is greater for VCTs than it is for comparators in respect of which conditional tax incentives do not exist; and where spreads are greater for VCTs with a three-year as opposed to a five-year required holding period. In essence, the non-transferability of investment relief from initial subscribers to secondary purchasers results in a significant divergence of these respective parties' valuations. Consistent with the influence of the required holding period on investor behaviour, the number of customer bargains is minimal during this period and increases significantly thereafter. Although there are potential non-tax explanations, there is evidence that VCT trading volume is less than that for comparable non-VCT investment vehicles. Circumstantial evidence in the form of buy-backs is also consistent with the presence of a lock-in effect.

This study is novel in that the magnitude of the lock-in effect can be calculated with certainty without requiring access to confidential shareholder information. In addition, a further methodological opportunity is provided by an unexpected change in related taxation legislation (as regards length of required holding period).

Our results lead to a questioning of the benefit of requiring VCTs to be listed companies. This is reinforced by the relatively low importance attached to exit strategy concerns by VCT shareholders at the time of subscribing. A listing may bring benefits such as increased monitoring, suggesting reduced agency costs between managers and shareholders; but, conversely, agency costs may be increased because it is so expensive for shareholders, in the event of displeasure with directors' actions, to dispose of their VCT holding within the required holding period. An interesting question is whether the purported benefits of a full market listing exceed the direct and indirect costs associated with obtaining and maintaining that listing.

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Notes

1. In order to comply with European Commission regulation of state aid this requirement was relaxed to require listing on any 'European Union Regulated Market' (HM Treasury 2009a). The necessary legislation would be included in the Finance Act 2010.
2. In general, financial institutions and non-UK income tax payers dominate the ownership of UK quoted companies. As at 31 December 2001 UK tax-exempt pension funds held 16% of the market value of the London Stock Exchange and UK insurance companies whose business also includes tax-exempt pension funds held a further 20%. The largest shareholding group was non-UK institutions and individuals, which held 36% (ONS 2002). At 31 December 2006 a similar position held, the respective percentages were 13, 15 and 40% (ONS 2007).
3. After allowing a three-year period in which to identify and appraise potential investments, at least 70% of the VCT's investments must comprise new issues in unquoted trading companies. Of this 70%, at least 30% must be in the form of equity, and the balance may be preference or debt capital.
4. In an attempt to ensure a diversified portfolio, no single holding may exceed 15% of the VCT's investments.

5. In order to target investment at small, unquoted funds, there is an upper limit on the size of companies in which VCTs may invest. Immediately prior to investment by the VCT, the gross assets of the investment target company must not exceed £15 million; and immediately after, they may not exceed £16 million (prior to 6 April 1998 the corresponding figures were £10 million and £11 million).
6. Discussions with VCT managers indicate, however, that VCT investors rarely consider exit strategy options at the time of initial subscription. This view is consistent with the findings reported in PACEC (2003).
7. Liquidity could also be provided under general powers available to all limited companies (S.163, Companies Act 1985) to make market purchases or buy-backs of their own shares. All of the 17 VCTs focused upon in Section 5.3 and Tables 4 and 5 (see subsequent discussion) have adopted such powers. The terms of the permitted buy-backs, based on a review of the buy-back terms of 10 of the 18 VCTs, indicates that the maximum price permitted is based on 105% of mid-market price (6 VCTS) or the lower of 105% of the mid-market price and net asset value (4 VCTs). Clearly, under both mechanisms of price determination, the conditional form of the investment relief will still create a lock-in effect, although taking a mid-market price reduces its magnitude.
8. In his budget speech, the Chancellor of the Exchequer announced on 17 March 2004 a series of changes to the nature of the tax incentives. For shares issued on or after 6 April 2004 the rate of income tax relief for investments was to be increased from 20 to 40%; CGT deferral relief was no longer available for gains re-invested in VCT; and the annual taxpayer VCT investment limits was raised from £100,000 to £200,000. These changes recognised the primacy of income-tax-related reliefs over gain deferral or roll-over relief.
9. Subject originally to an upper investment limit of £100,000 per fiscal year per individual, later raised (see previous note).
10. We assume rationality in the repayment of overdue tax, that is, given the usual level of clawback interest rate in comparison to expected risk-adjusted asset returns, that overdue tax will be paid immediately a liability is recognised.
11. As might be expected, later analysis shows a significant correlation between *VIR* and bid price, which is used as a control variable in the multivariate regression analysis which follows. The use of *VIR* decomposed into variables *VIRA* and *VIRB* partially overcomes the potential multicollinearity present when using a single *VIR* variable. See note 18 for further details.
12. These 137 are represented in Table 1 as 125 new issues, 1997–98 onwards, plus 12 of the 14 issues in 1995–96 and 1996–97 where no split between new issues and further issues is reported.
13. It was necessary to complete the collection of the required data-set by purchasing the volume data directly from the London Stock Exchange because of Datastream's decision not to collect data on number of customer bargains and number of shares traded therein from 27 March 2002.
14. The exclusion of *PB* between zero and one pence entailed the removal of relatively few observations, but avoided extreme values arising when *SPREAD* was considered as a proportion of *PB* (see later section). Comparability with the VCT sample is not compromised, however, since the smallest *PB* observation in the VCT sample was four pence.
15. Since the London Stock Exchange was unable to provide data on daily trading prior to 1 October 1997, the final samples included (respectively) only 145,124, 24,517 and 44,388 daily observations for number of customer bargains and number of shares traded in customer bargains.
16. See Enders (1995) or Greene (2000) for a discussion of the ADF test and appropriate responses where the series test was nonstationary.
17. The spread declines just before the end of the holding period. The implication is that the required holding period ended in fact, on average, just prior to the date which we calculated. A possible reason is our calculations were necessarily based on the listing date of the VCT shares; yet required holding properly runs from subscription date, which often preceded the listing date. We thank a reviewer for drawing our attention to this observation.
18. All but two of the VCTs in our sample were issued at a price of 100 p per share. One VCT was issued at a price of 98 p per share; and another at 20 p per share.
19. The mean correlation coefficient between the variables ΔVIR and ΔPB is 0.751 for the sample of 17 active VCTs. When the decomposed variables are used, the mean correlation coefficient between $\Delta VIRA$ and ΔPB is -0.026; and that between $\Delta VIRB$ and ΔPB is 0.752. A number of individual coefficients, however, are in excess of 0.9. Therefore, there is a strong possibility that the reported results are affected by multicollinearity with respect to the variables ΔVIR and ΔPB in the first model and $\Delta VIRB$ and ΔPB in the second model. None of the correlation coefficients amongst the other control variables are 'high' (the highest value being 0.552, as between *VOL* and *BAR*).

20. In preference, for example, to the Cochrane–Orcutt procedure, which, unlike Hildreth–Lu, is susceptible to finding local rather than global optima.
21. The only noteworthy deviations are in the OLS estimation of Model (9), where, when $r = 8$ or 16% is adopted, the number of estimated $\Delta VIRA$ coefficients are reduced to 8 or 7 (respectively) out of 17, of which 7 are significant; that is, reduced incidence of positive estimates of the $\Delta VIRA$ coefficient, but increased incidence of significant positive estimates.
22. James (2000) suggests a spread of 0.75% of market price within an overall upper bound of 1.80% on trading costs.

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Practitioners' participation in the accounting standard-setting process

SYLVAIN DUROCHER[a*] and ANNE FORTIN[b]

[a]*Telfer School of Management, University of Ottawa, 55 Laurier E. Ottawa, Ontario, Canada, K1N 6N5;* [b]*Département des sciences comptables, Université du Québec à Montréal, CP 8888, Succ. Centre-Ville, Montréal, Québec, Canada, H3C 3P8*

Constituents' participation in standard-setting processes is seen as a key indicator of a standard setter's legitimacy. While previous research has mainly examined corporate economic determinants of participation, limited evidence exists on practitioners' motivations to become involved in developing accounting standards. This study uses expectancy theory to explain practitioners' intentions to participate in the standard-setting process in the context of the development of financial reporting standards for private enterprises in Canada. The results suggest that the variables of the expectancy valence model are determinant of the attractiveness of becoming involved in the standard-setting process by submitting a comment letter, and the variables of the expectancy force model are determinant of a practitioner's behavioural intentions to participate in the standard-setting process.

Keywords: expectancy theory; participation in standard-setting; practitioners; financial reporting standards; private enterprises

1. Introduction

National and international accounting standards are developed through a 'due process' according to which standard setters solicit views and suggestions from their stakeholders and invite public comments on discussion papers and exposure drafts (e.g. IASCF 2006, AcSB 2009a, ASB 2009, FASB 2009). Constituents' participation in standard-setting due processes is seen as an indicator of a standard setter's legitimacy (Tandy and Wilburn 1992, Larson 2002, 2007, Durocher *et al.* 2007). A lack of constituents' involvement may hinder the appropriate identification and evaluation of all important alternatives and viewpoints, and thus jeopardise the quality of standard-setting outputs. Understanding the motives of constituents' participation in standard-setting processes is therefore of the utmost importance.

In particular, practitioners' opinions on proposed accounting standards are highly valuable for two main reasons. First, their expertise means they have the necessary knowledge to comment on proposed standards (Larson 2007). Second, as the link between the reporting entity and the

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*Corresponding author. Email: durocher@telfer.uottawa.ca

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financial statement users, public accountants are in a good position to determine the relevance and importance of information to be included in financial statements (Knutson and Wichmann 1984).

Previous research on motives for participating in standard-setting processes (participation choice research) focused on corporate managers' decisions to participate, drawing on economic theories (Schalow 1995). Although authors have studied accounting firms' (practitioners') position on proposed accounting standards (e.g. Deegan *et al.* 1990), their influence on standard setters' decisions (e.g. Hussein and Ketz 1980) and the coalition they may form amongst themselves (e.g. Puro 1985) and with their clients (e.g. Haring 1979), practitioners' motives for participating have received much less attention.

This study fills this gap in the literature by examining practitioners' decisions to participate in the standard-setting process (participation choice). Unlike previous research based on economic theories, it innovates by drawing on an organisational behaviour theory, that is, expectancy theory (Vroom 1964), to address the following general research question: Why do practitioners participate in the standard-setting process? This research is conducted in the context of the Canadian standard-setting proposal regarding financial reporting by private enterprises. More specifically, the research question is: Why would Canadian practitioners participate in the standard-setting process by submitting a comment letter in response to the exposure draft, *Generally Accepted Accounting Principles for Private Enterprises*, issued by the Accounting Standards Board (AcSB) of the Canadian Institute of Chartered Accountants (CICA) in 2009 (AcSB 2009b)?

For many years, practitioners have called for a simplification of accounting standards for small and private business enterprises (Paradis *et al.* 1999). This issue is becoming ever-more critical with the growing complexity of accounting standards, as the world is turning to International Financial Reporting Standards (IFRS) that are developed for the reporting requirements of large and public enterprises (Evans *et al.* 2005). The Canadian standard-setting project on financial reporting by private enterprises represents an opportunity for Canadian practitioners to voice their opinion on a situation they have been denouncing for some time.

Whereas previous research drew on cost–benefit frameworks to explain participation choice, this study uses Vroom's expectancy theory (1964) to explain practitioners' intention to participate in the development of accounting standards for private enterprises. The concepts of valence, instrumentality and expectancy elaborated by Vroom allow for the consideration of a broader range of motives that may explain practitioners' involvement in the standard-setting process.

The remainder of the paper is organised as follows. First, it reviews previous research on participation choice, along with earlier accounting research using expectancy theory. Second, it describes the Canadian proposal regarding financial reporting by private enterprises, which constitutes the context of the study. Third, it presents the study's methodology, and fourth, it reports and discusses the results, before following up with concluding remarks.

2. Previous research and theoretical framework

2.1 Prior literature

Previous research examining constituencies' motives to lobby standard-setting bodies focused on corporate managers. Early studies examined the position choice (Watts and Zimmerman 1978, Dhaliwal 1982), while subsequent ones specifically addressed the participation choice per se. Drawing on positive accounting theory (e.g. Kelly 1982, 1985, Watts and Zimmerman 1986, Deakin 1989, Dechow *et al.* 1996, Ang and Gallery 2000, Georgiou 2005), on Downs' economic theory of democracy (1957) (Sutton 1984, Francis 1987) or on both (Schalow 1995, Georgiou 2002), these authors assume that managers' decisions to engage in lobbying activities will be driven by the proposed accounting standard's impact on their expected utility, that is, the economic consequences of the proposal, which have been linked to corporate characteristics. Variables such as firm size, leverage, percentage of management ownership and financial statement effects are examples of predictors of a manager's participation. These scholars contend that a corporate manager will engage in lobbying activities if the expected benefits outweigh the expected costs. Costs relate to resources needed to prepare a submission, while benefits are tied to the likelihood of being able to influence the standard setter's decision, multiplied by the present value of the positive impact on the manager's wealth.

Although the likelihood of being able to influence the standard setter's decision is theoretically captured by these frameworks, this variable is not explicitly considered in research designs that use corporate attributes as proxies for the impact on managers' utility. Very few studies have attempted to explicitly include the ability to influence the outcome of the standard-setting process as an additional variable in their research designs (Baskerville and Pont Newby 2002). One exception is Schalow (1995), who studied corporate managers' decision to submit a comment letter on the exposure draft regarding SFAS No. 106, *Employer's Accounting for Postretirement Benefits Other than Pensions*. To further explain her results, she surveyed corporate managers that participated and others that did not: 52% of the 63 non-participants who returned the survey indicated they did not participate because they felt they could not influence the content of the standard. Georgiou (2002) also found that one reason for corporate managers' non-participation in the UK Accounting Standards Board's discussion paper on deferred tax was their view that they could not influence the outcome of the process. Perception of being able to influence the outcome is therefore an important variable that should be explicitly considered in research designs.

Practitioners' participation in standard-setting processes has mainly been studied in terms of position choice, coalitions and influence on standard setters' decisions. Economic cost–benefit frameworks underlie practitioners' position choice research. It is assumed that audit firms (practitioners) seek to influence the standard-setting process to maximise their expected wealth (Deegan *et al.* 1990). Since lobbying reveals a preference for specific accounting treatments (position choice), the incentives to lobby may likely be similar to those underlying preferences in terms of accounting policies (Francis 1987). Position choice research may thus provide an indication of participation choice incentives.

The economics of regulation model predicts that audit firms will favour the additional business resulting from new disclosure requirements, while agency theory posits that audit firms will favour rules that benefit their clients since audit firm wealth is a function of their clients' wealth (Puro 1984, Watts and Zimmerman 1986). Whereas client managers are expected to oppose complex standards, which involve additional audit costs, auditors are expected to support such standards, which would increase their audit fees (Watts and Zimmerman 1986, Meier *et al.* 1993). Accordingly, the auditor's position is not solely determined by the client's position. Again, these cost–benefit frameworks do not explicitly consider the perceived ability to influence the outcome of the standard-setting process, which is assumed to be implicitly captured by expected benefits.

Another stream of research examined possible coalitions amongst practitioners and with their clients and their influence on standard setters' decisions. This literature provides conflicting results. For example, although Hussein and Ketz (1980) and Puro (1985) did not find a systematic alignment in the positions of the large accounting firms on different accounting issues, Mezias and Chung (1989) found that accounting firms present the greatest within-group consensus. Puro (1985) and McKee *et al.* (1991) found support for a possible coalition between accounting firms and their clients, while Haring (1979) and MacArthur (1988) did not. In addition, although some evidence suggests that standard setters' decisions reflect the preferences of large accounting firms (Haring 1979, Puro 1985, Mezias and Chung 1989), other findings report the opposite (Hussein and Ketz 1980, Brown 1981). There is some evidence to suggest that standard setters are receptive to preparers' (Brown and Feroz 1992, Saemann 1995) or users' (Saemann 1999) preferences.

In sum, our literature review highlights the absence of empirical evidence on practitioners' participation choice. However, based on previous research on corporate managers' participation choice and on the few studies examining practitioners' position choice, it can reasonably be stated that cost–benefit considerations are key drivers of practitioners' decision to get involved in the standard-setting process. Nevertheless, most previous research designs have not explicitly considered the ability to influence the outcome of this process. This is an important issue since previous research on coalition and influence provides mixed results about practitioners' influence on standard setters' decisions.

Our contribution is to study practitioners' participation using expectancy theory, which allows us to capture not only cost–benefit considerations in the research design, as did previous research, but also the ability to influence the outcome.

2.2 *Theoretical framework*

Expectancy theory (Vroom 1964) has been used as the theoretical framework for many studies in organisational behaviour and psychology as it provides an explanation of an individual's behavioural intentions. It includes two interrelated models: the valence model and the force model, which incorporate three factors – valence, instrumentality and expectancy.

Valence, defined as all possible affective orientations toward outcomes (Vroom 1964), has been interpreted as attractiveness, importance, desirability or anticipated satisfaction with outcomes (Van Eerde and Thierry 1996). Instrumentality refers to the perceived likelihood that a first-level outcome (here, participation in the standard-setting process) would lead to second-level outcomes (here, the resulting benefits of participating in the standard-setting process). The valence model incorporates valence and instrumentality since it predicts that the attractiveness of a first-level outcome (participation) is a monotonically increasing function of the sum of the products of the valences of associated second-level outcomes (benefits of participation) and the strength of the perceived relationship between the first-level outcome and its associated second-level outcomes (Vroom 1964).

In this study, the valence model predicts that practitioners assess the attractiveness of participating in the standard-setting process, considering the benefits that would result from their participation and the likelihood that their participation would lead to obtaining the expected benefits. Thus:

$$V_j = \sum_{K=1}^{n} (V_k I_{jk}) \qquad \text{(Model 1)}$$

where

$V_j =$ the valence, or attractiveness, of participating in the standard-setting process (first-level outcome);

$V_k =$ the valence, or attractiveness, of the benefits resulting from participation (second-level outcomes);

$I_{jk} =$ the probability that the perceived benefits (V_k) would result from participation (instrumentality).

As Vroom (1964) argues, the valence model cannot fully explain behavioural intentions. These intentions are also influenced by the degree to which an individual believes the first-level outcome (and the resulting second-level outcomes) to be probable, which in turn refers to expectancy. Expectancy is defined as the subjective probability of an action or effort leading to an outcome or performance (Vroom 1964). As an example, Vroom points out that an individual's choice of occupation is not solely explained by his or her preferences for this occupation and the related second-level outcomes it involves (e.g. salary level, societal status, nature of the occupation). It is also explained by the costs involved in obtaining the occupation, the required abilities and the general job market.

In our study, expectancy corresponds to the practitioners' perception of being able to participate adequately in the standard-setting process, given the time and resources available to them. The force model incorporates both the expectancy and the valence model's dependent variable. The motivational force (level of effort) acting on a person to perform a particular act (here, to participate in the standard-setting process) is a monotonically increasing function of the sum of the products of the valences of first-level outcomes (and their resulting second-level outcomes) and the expectancies (probabilities) that the act will be followed by the attainment of these first-level outcomes (Vroom 1964). Thus:

$$F_i = \sum_{j=1}^{n} (E_{ij} V_j) \qquad \text{(Model 2)}$$

where

$F_i =$ the motivational force to exert efforts to participate in the standard-setting process;
$E_{ij} =$ the expectancy or likelihood that a particular level i of effort will lead to an adequate participation (the first-level outcome);
$V_j =$ the valence or attractiveness of participating in the standard-setting process, derived from the valence model.

In short, Vroom's expectancy theory (1964) does not only capture the costs and benefits suggested as predictors of stakeholders' participation in the standard-setting process by previous research, it also allows for explicit consideration of the stakeholders' perception of their ability to influence the outcome of the standard-setting process, which is captured by instrumentality in the valence model.

Expectancy theory has been used by many accounting scholars in several accounting contexts over the last 35 years. For example, the variables of expectancy theory were used to study the incidence on managerial motivation of budgets per se (Ronen and Livingstone 1975), of budgetary participation (Brownell and McInnes 1986), and of rewards, attainability of targets, accuracy of achievement measures and transparency of performance–rewards relationships (Kominis and Emmanuel 2007), as well as to study the relationship between the motivation of professional accountants and job performance (Ferris 1977, Ferris *et al.* 1980). However, by using between-subject designs, all these studies were not set up to study behavioural intentions, that is, individual choices. To study behavioural intentions, such as the intention to participate in the standard-setting process, it is more appropriate to use a within-subjects approach (Snead and Harrell 1994).

Expectancy theory models used in within-subjects designs have been useful in explaining managers' motivation to implement just-in-time procedures (Griffin and Harrell 1991), to complete projects within the limits indicated in their cost budgets (Harrell and Stahl 1984) and to use a decision support system (Snead 1991, Snead and Harrell 1994). It has also been conclusive in explaining student motivation to participate in peer (Chen and Lou 2004) and teaching evaluations (Chen and Hoshower 1998), and to exert academic effort (Stahl and Harrell 1981, Harrell *et al.* 1985, Geiger *et al.* 1998, Campbell *et al.* 2003). In addition, it has been used to predict accountants' migration intentions (Dillard 1979).

Durocher *et al.* (2007) developed an explanatory theory using a meso-level approach and qualitative methodology to describe the participation of financial statement users in the standard-setting process. They suggested that users' involvement can be explained by an idiosyncratic combination of legitimacy perceptions towards the characteristics of the standard-setting process. Using legitimacy theory, they linked the characteristics of the standard-setting process to the individual determinants of users' participation that were categorised using Vroom's expectancy variables (1964) (valence, instrumentality and expectancy). Baskerville (2005) used Vroom's expectancy theory to explain the increased constituent participation in the New Zealand standard-setting process that was observed immediately following institutional changes. She suggested that the increase in participation may stem from a belief by constituents that there is a greater possibility to influence the outcome when institutional changes occur. Expectancy theory thus seems relevant to study practitioners' motivation to participate in standard-setting processes.

Participation in accounting standard-setting processes is context-dependent (Baskerville and Pont Newby 2002). Generally speaking, stakeholders need to be concerned about a particular accounting issue to decide to exert any effort to get involved in the formulation of an appropriate accounting standard.[1] In addition, expected benefits from participation could differ according to the accounting issue in question. That is why it is appropriate to put the study of stakeholder involvement in accounting standard-setting processes into context. We examine practitioners' participation in the Canadian standard-setting proposal regarding financial reporting by private enterprises. We thus contribute to the 'Big GAAP–Little GAAP' literature by highlighting important factors explaining practitioners' participation choice.

3. Financial reporting by private enterprises in Canada

Private enterprises have enormous economic significance worldwide (Evans *et al.* 2005). In Canada, 99% or more of businesses are private, employ 55% of the Canadian workforce and account for 45% of Canada's total economic output (AcSB 2004). Hence, financial reporting by private enterprises is not a trivial issue.

National standard setters undertook local initiatives to adapt their accounting standards to the needs of small and medium-sized enterprises (SMEs), defined using either qualitative or quantitative tests (Baskerville and Cordery 2006). While many adopted a top-down approach, adapting the 'Big GAAP' to the needs of SMEs, others adopted a bottom-up approach, building a completely different set of standards for SMEs (Baskerville and Cordery 2006). The International Accounting Standards Board (IASB) recently issued its *International Financial Reporting Standard for Small and Medium-Sized Entities* (IFRS for SMEs) (IASB 2009), a fully stand-alone set of standards applicable by entities that do not have public accountability. This new pronouncement will undoubtedly have an impact in several national contexts.

For example, in the UK, smaller incorporated enterprises are governed by the Accounting Standards Board's *Financial Reporting Standard for Smaller Enterprises* (FRSSE), a simplified set of reporting rules (Sian and Roberts 2009). Following the publication of IFRS for SMEs, it is expected that full IFRS will continue to be mandatory for public companies, the FRSSE will be applicable for small entities and the IFRS for SMEs for all other entities (McQuaid 2009). In Australia, the Australian Accounting Standards Board is currently seeking views on the use of a reporting framework based on IFRS for SMEs (AASB 2009) and it is expected that the Financial

Reporting Standards Board in New Zealand will seek views on the use of IFRS for SMEs in this country (Sealy-Fisher 2009).[2]

Since 2002, Canadian non-publicly accountable enterprises have been allowed limited differential reporting options, that is, simplified accounting treatments or reduced disclosures (Rennie and Senkow 2009). In 2006, the Accounting Standards Board (AcSB) of the Canadian Institute of Chartered Accountants (CICA) decided to adopt IFRS for public enterprises starting in 2011 (AcSB 2006). The AcSB issued a discussion paper on financial reporting by private enterprises in 2007 (AcSB 2007) and in the same year, the CICA released a white paper proposing a framework for owner-managed enterprises without important external users (CICA 2007). Respondents that filed a comment letter on this white paper strongly urged the Canadian standard setter to adopt a unique set of accounting standards for all types of private enterprises. In April 2009, the AcSB issued an exposure draft, entitled *Generally Accepted Accounting Principles for Private Enterprises*, proposing an independent set of accounting standards for all private businesses (AcSB 2009b). This proposal included simplified accounting treatments and suggested lower disclosure requirements (AcSB 2009b). The AcSB officially adopted its new accounting standards for private enterprises in September 2009 (CICA 2010b). A private enterprise is defined as a profit-oriented entity that is neither a publicly accountable enterprise[3] nor an entity in the public sector (CICA 2010a).

Participation may take different forms at different moments in the standard-setting process (Walker and Robinson 1993, Georgiou 2004). It may be formal (e.g. serving on standard-setting committees, participating in study groups or in roundtables, submitting comment letters in response to exposure drafts) or informal (e.g. private discussions with AcSB members). It may take place sooner (e.g. when the agenda is established) or later (e.g. in response to an exposure draft) in the standard-setting process. We have concentrated on participation through submitting a comment letter on the exposure draft on financial reporting by private enterprises. This specific form of participation was chosen in order to situate our research in a current and realistic context. The exposure draft was issued by the AcSB on 30 April 2009 and stakeholders had three months to file a comment letter. We released our survey in May 2009, during a period where practitioners had a realistic behavioural choice to make.

The operationalisation of the valence model requires the identification of major second-level outcomes that could result from practitioners' participation in the standard-setting process for the specific proposal on financial reporting by private enterprises. Three outcomes were identified from our literature review: (1) the content of accounting standards would be more adapted to the needs of private enterprises, (2) the interest of private enterprises for audit or review engagements vs. compilation engagements would increase, and (3) audit and review standards would be adapted to the new accounting standards applicable to private enterprises. These outcomes are now addressed in turn.

One important outcome from practitioners' participation would be accounting standards that are more adapted to the needs of private enterprises. The 'Big GAAP–Little GAAP' controversy has been under debate since the 1980s (Campbell 1984, Knutson and Wichmann 1984). As accounting standards become increasingly complex, it is generally admitted that financial reporting requirements impose a significant burden on smaller enterprises (Page 1984, Keasey and Short 1990, Paradis *et al.* 1999, Evans *et al.* 2005, Rennie and Senkow 2009, Sian and Roberts 2009).

In addition to undue burdens and disproportionate costs of reporting for smaller businesses, other arguments for different standards for private enterprises include a lack of relevance of prevailing accounting standards for financial statement users, the existence of narrower user groups, a usefulness of accounting information for a narrower range of decisions, the existence of less complex transactions in the environment of private businesses (Evans *et al.* 2005), more close-knit agency relationships, and a tendency to aim for survival and stability over profit maximisation and growth (Baskerville and Cordery 2006). Practitioners believe that private enterprises need accounting standards better adapted to their needs and to those of their financial statement users (Paradis *et al.* 1999, Rennie and Senkow 2009), which is consistent with agency theory that surmises that auditors would favour rules that benefit their clients since their own wealth is linked to their clients' wealth.

This pressure for accounting standards adapted to the needs of private enterprises represents a huge challenge for standard setters, who have to reconsider the decision usefulness perspective underlying their conceptual frameworks and revisit the specific stewardship focus of private enterprise reporting (Baskerville and Cordery 2006). As Baskerville and Cordery (2006) point out, since users are fairly silent in the standard-setting process, the challenge is to assess their needs and devise appropriate reporting mechanisms that will enhance accountability and transparency. Hence, standard setters have to make an informed guess about the appropriate balance between costs for preparers and benefits to users when developing their proposed standards. By filing a comment letter in response to the exposure draft on financial reporting by private enterprises, Canadian practitioners have the opportunity to express their opinion on how adequately they consider the proposed set of standards to be adapted to the needs of private businesses.

Another important outcome from practitioners' participation would be that the interest of private enterprises in audit or review engagements vs. compilation engagements would increase. The growing complexity of accounting standards has led to additional costs not only for the preparation of financial statements by private businesses, but also for assurance engagements. As a result, practitioners have noted a downgrading of audit engagements to review engagements, and of review engagements to compilation engagements (Paradis *et al.* 1999, McRae and Wallis 2004), which adversely affects practitioners' professional fee income. Deegan *et al.* (1990) suggest that audit firms seek to influence the standard-setting process to maximise their expected wealth from providing professional services. This is in line with the economics of regulation model predicting that audit firms will favour the additional business, or increased wealth, resulting from accounting standards. By filing a comment letter on the exposure draft, practitioners have the opportunity to lobby for the simplification of specific accounting standards they believe have caused private businesses to downgrade assurance engagements, hoping that more simplified accounting standards may induce their clients to upgrade the professional services they request from practitioners.

The last important outcome from practitioners' participation is linked to the adaptation of audit and review standards to the new accounting standards applicable to private enterprises. Existing assurance standards, which were devised primarily with large entities in mind (Trotman 2006), are exerting more and more pressure on practitioners (Paradis *et al.* 1999, Trotman 2006), especially on small and medium-sized auditing firms and sole practitioners (Stroude 2008). As Stroude (2008) indicates, after the CICA introduced the Canadian Standards on Quality Control in 2005 some practitioners had to divest themselves of assurance clients, turn an assurance engagement into a compilation engagement or, in some cases, incur additional costs to meet the new standards. A year later, in 2006, practitioners had to implement a new audit risk model, leading to more time-consuming audits, increased fees and lower profit margins. In 2007, a documentation standard was introduced, requiring practitioners to assemble a complete and final set of audit documentation no later than 45 days after the report release date. In 2008, the CICA Auditing and Assurance Standards Board (AASB) announced its decision to adopt international standards on auditing (ISA) issued by the International Auditing and Assurance Standards Board. From a practitioner's perspective, 'one needs to ask if these new standards put in place to address the big audit failures of the past decade are necessary for the audit of private entities' (Stroude 2008, p. 33). By submitting a comment letter on the exposure draft on financial reporting by private enterprises, practitioners also have the opportunity to call for a simplification of assurance standards, with the hope that the AcSB would pass on theses comments to the AASB, or work in collaboration with the AASB to adapt assurance standards to the proposed simplified accounting standards for private enterprises. A simplification of assurance standards would involve lower costs for practitioners, and, as suggested by the economics of regulation model, practitioners are expected to favour standards that maximise their wealth.

4. Methodology

4.1 *Subject selection*

In this study, we used the 288 Canadian CA practitioners who filed a comment letter in response to either the discussion paper *Financial Reporting by Private Enterprises* (AcSB 2007) or the proposed *Framework for Owner Managed Enterprises* (CICA 2007), or both, issued respectively by the AcSB and the CICA in 2007. Comment letters are available in public files set up by the CICA for each of its standard-setting proposals. Practitioners that commented on these documents can be expected to be well-informed, specifically interested in financial reporting by private enterprises and familiar with the accounting standard-setting due process. As such, they were considered appropriate respondents for this study examining their intention to submit a comment letter in response to the exposure draft *Generally Accepted Accounting Principles for Private Enterprises* issued by the AcSB in April 2009.

4.2 *Study design*

We used a judgment modelling approach that involves providing the practitioner with a set of cues which he or she may use in making a judgment or decision. When the aim is to study behavioural intentions, that is, individual choices, it is more appropriate to use expectancy theory in a within-subjects approach (Murray and Frazier 1986, Snead and Harrell 1994, Geiger and Cooper 1996). A within-subjects methodology requires obtaining judgment or decision measurements from each subject under different combinations of strength or values associated with the cues. Our within-subjects design is similar to those used in previous studies mobilising expectancy theory to examine accounting-related phenomena (Snead and Harrell 1994, Chen and Hoshower 1998, Chen and Lou 2004). We used a complete factorial design (Montgomery 1984) that provided each respondent with 16 scenarios in order to gather their behavioural intentions under various combinations of two instrumentality and expectancy levels, as we now explain.

The valence model was operationalised as follows. We provided each practitioner with the three possible (second-level) outcomes of their participation in the standard-setting process (V_k). As explained above, the three second-level outcomes are: (1) the content of accounting standards would be more adapted to the needs of private enterprises, (2) the interest of private enterprises for audit or review engagements vs. compilation engagements would increase, and (3) audit and review standards would be adapted to the new accounting standards applicable to private enterprises. To operationalise instrumentality (I_{jk}), we used two levels of likelihood that filing a comment letter would result in each of the second-level outcomes (10 or 90%). This involved eight different combinations of the outcomes ($2^3 = 8$ combinations).

Practitioners had to make a first decision, Decision A (V_j), by indicating on an 11-point anchored-scale (ranging from -5 [very unattractive] to 5 [very attractive]) the attractiveness of submitting a comment letter in response to the exposure draft on the proposed standards for private enterprises considering the stated outcomes and associated likelihood levels. The instructions and a sample scenario are provided in the Appendix.

The force model was operationalised as follows. As indicated earlier, expectancy (E_{ij}) corresponds to the practitioners' perception of being able to participate adequately in the standard-setting process given the time and resources available to them. We used two levels of expectancy (10 and 90%). Respondents were informed that preparing a comment letter could require a great deal of effort on their part and of the degree of likelihood (10 or 90%) that they would have sufficient time and resources to adequately prepare such a letter.

Keeping in mind this added information and the attractiveness of participation they indicated in Decision A, they then had to make a second decision, that is, Decision B (F_i), indicating, on an 11-point anchored-scale (ranging from 0 [zero effort] to 10 [great deal of effort]), the level of effort they would exert in preparing a comment letter in response to the exposure draft on the proposed standards for private enterprises.

Considering the eight combinations of the outcomes in the valence model and the two levels of expectancy in the force model, we ended up with 16 distinct scenarios (8 combinations for the outcomes × 2 levels of expectancy = 16 scenarios). We collected measures of the behavioural intentions for the 16 possible scenarios for each respondent and randomly selected the order of presentation of each scenario, with every respondent receiving an identical instrument.

The research instrument was pilot tested with three faculty colleagues and three practitioners who were not part of the final study. Based on their feedback, the wording of the questions was fine-tuned to clear up any apparent ambiguities and the presentation format was improved. In addition to the questionnaire, participants received a cover letter describing the purpose of the study, the voluntary nature of their participation and the precautions undertaken to ensure confidentiality and anonymity. The first section of the questionnaire contained nine questions requesting biographical information (gender, age, year qualified as a CA, primary area of practice, participants' title or position in their firm, number of partners in the office and the firm, whether or not comment letters had been previously submitted on CICA or AcSB discussion papers or exposure drafts, and number of letters submitted). The second section set out the instructions, followed by the 16 scenarios. A reminder card was mailed three weeks after the initial mailing.

To analyse participants' responses, multiple linear regressions are used. Given the within-person nature of expectancy theory, separate regressions are run to model the judgments of each respondent for both the valence and the force models. Further analyses (means, standard deviations, correlations and comparisons according to demographic variables) are then performed on the values of the standardised regression coefficients and percentages of variance explained (values of adjusted R^2) obtained for the individual regression models.

5. Analysis and discussion of results

5.1 *Sample*

Eighty-one practitioners participated in the study for a 28.1% response rate.[4] Table 1 presents respondents' demographics. The sample is largely made up of men (61/81, 75%) who are mainly partners (69/81, 85%). Respondents are quite experienced, having worked a mean number of 22.7 years since obtaining their CA designation. Their seniority is also reflected in the sample's mean age which is close to 49 years. The majority of participants are active in public practice/assurance (57/81, 70%). Most respondents belong to a small/intermediate firm (51/81, 63%) or are sole practitioners (21/81, 26%). Four participants seem to be from Big 4 auditing firms (more than 100 partners). As practitioners solicited for the study had already participated in the standard-setting process, it is no surprise that our respondents reported a high degree of participation through submitting comment letters on the *Framework*

Table 1. Sample demographics ($n = 81$).

Gender	Men =	61
	Women =	20
Title or position in accounting firm	Partner =	69
	Director =	10
	Senior auditor =	2
Primary area of practice	Public practice/assurance =	57
	Accounting/tax =	14
	Tax =	7
	Other =	3
Size of the accounting firm	Sole practitioner =	21
	2–21 partners =	51
	35–45 partners =	4
	More than 100 partners =	4
	Missing =	1
Comment letter submitted regarding the 'Framework for Owner Managed Enterprises'	Yes = 63 No = 18	
Comment letter submitted regarding 'Financial Reporting by Private Enterprises'	Yes = 37 No = 44	
Other comment letters submitted	Yes = 33, mean number = 4.58 (n = 1–20) No = 48	
	Mean (std dev.)	Min.–Max.
Age	48.9 (10.9)	25–74
Number of years CA designation	22.7 (11.2)	2–48

for Owner Managed Enterprises (CICA 2007) (63/81, 78%), the discussion paper on *Financial Reporting by Private Enterprises* (AcSB 2007) (37/81, 46%) or other AcSB exposure drafts (33/81, 41%).

5.2 *Valence model (Model 1)*

To determine the attractiveness of participating in the standard-setting process for each participant, individual regressions were performed with participants' valence decisions (Decision A, V_j) as the dependent variable and the instrumentalities (probabilities, I_{jk}) associated with the three second-level outcomes, the independent variables. The resulting standardised regression coefficients (beta weights) represent the valence individuals place on the respective second-level outcomes (V_k) in reaching their valence decision for Decision A (Stahl and Harrell 1983).

Of the 81 participants, all but six had significant ($p \leq 0.05$) regression models.[5] Table 2, Panel A, presents a summary of the individual models for the remaining 75 practitioners. The average adjusted R^2 value for the significant regressions is 0.722. This average represents a high level of explanatory power and suggests that the valence model is highly relevant to explain practitioners' participation in the standard-setting process. The mean adjusted R^2 value obtained is also comparable to that found in several studies that successfully used Vroom's valence model (1964) with either students (Geiger and Cooper 1996, Chen and Hoshower 1998, Geiger *et al.* 1998, Campbell *et al.* 2003, Chen and Lou 2004) or managers (Griffin and Harrell 1991, Snead and Harrell 1994).

The mean beta weights for the three second-level outcomes are quite high. The mean beta weight for the valence of having the content of accounting standards more adapted to the needs of private enterprises (*Acc Std*) is the highest at 0.602, indicating that it is the key influence on the attractiveness of participating in the standard-setting process. The next highest mean standardised beta weight is for the valence of having audit and review standards adapted to the new accounting standards applicable to private enterprises (*Ass Std*, mean of 0.382). The third

Table 2. Valence model regression results ($n = 75$).

	Mean	Standard deviation	Range	Frequency of significance at 0.05 level
Panel A: Regression results				
R^2 (adj.)	0.722	0.176	0.336 to 1.000	75/75
Std beta weight				
Acc Std[a]	0.602	0.259	−0.709 to 1.000	65/75
Aud Eng	0.303	0.238	−0.280 to 0.875	37/75
Ass Std[b]	0.382	0.237	−0.153 to 0.915	48/75

Panel B: Std beta weight correlation results

	Aud Eng	*Ass Std*
Acc Std	−0.401***	−0.321**
Aud Eng		−0.289*

Acc Std = valence of having the content of accounting standards more adapted to the needs of private enterprises.
Aud Eng = valence of increased interest of private enterprises for audit or review engagements vs. compilation engagements.
Ass Std = valence of having audit and review standards adapted to the new accounting standards applicable to private enterprises.
[a] *Acc Std* is significantly different from *Aud Eng* and *Ass Std* at $p = 0.000$ (2-tailed t-test).
[b] *Ass Std* is different from *Aud Eng* at $p = 0.075$ (2-tailed t-test).
***Significant at 0.000; **significant at 0.01; *significant at 0.05 (2-tailed).

second-level outcome, that is, the interest of private enterprises for audit or review engagements vs. compilation engagements would increase (*Aud Eng*), also has a high degree of attractiveness for practitioners (mean of 0.303). Accordingly, all second-level outcomes appear to have been successful in capturing aspects of the attractiveness of participating in the standard-setting process.

As Table 2, Panel B, shows, the correlations between the three second-level outcomes are all negative and significant at $p \leq 0.05$ or less. This indicates that the individuals were selecting one of the second-level outcomes as the most attractive compared to the other two. In fact, 64 participants showed a preference for one of the second-level outcomes (not tabulated). Having the content of accounting standards more adapted to the needs of private enterprises is the most attractive second-level outcome for 42 participants, as measured by the beta weights. For 12 practitioners, the highest influence on their valence decision was having audit and review standards adapted to the new accounting standards; for 10 practitioners, it was the increased interest of private enterprises for audit or review engagements vs. compilation engagements that was most influential. Nine respondents considered two of the second-level outcomes to be equally important (including, in eight cases, having the content of accounting standards more adapted to the needs of private enterprises). Finally, the three second-level outcomes were equally significant for only two individuals. The fact that the majority of respondents considered the first outcome, that is, having the content of accounting standards more adapted to the needs of private enterprises, as most important (or amongst the most important) could conceal a motive of self-interest on their part. As suggested by the market for excuses theory (Watts and Zimmerman 1979), respondents may be reluctant to indicate that they are more willing to participate when they have self-interest (e.g. increase in review and audit engagements).[6]

Although there were no *ex ante* expectations regarding any possible effects of respondents' demographic characteristics,[7] we performed various analyses according to these variables in the interest of a thorough understanding of our results. The analyses of the valence model regression results according to the respondents' characteristics show no significant differences for any of these variables (tests not presented), except for the valence of increased audit or review engagements. For the latter, directors place greater importance than partners on this second-level outcome (mean beta weight = 0.433 vs. 0.281, $p = 0.062$).

Thus, overall, the attractiveness of participating in the standard-setting process is adequately explained by the three second-level outcomes used in this study. That is to say that for practitioners the attractiveness of submitting a comment letter in response to the exposure draft on the proposed standard for private enterprises is enhanced if such participation would result in the content of accounting standards being adapted to the needs of private enterprises. To a lesser extent, an increased interest of private enterprises for audit and review engagements vs. compilation engagements, as well as audit and review standards that would be adapted to the new accounting standards for private enterprises are also considered.

5.3 *Force model (Model 2)*

According to Vroom's force model (1964), the motivational force to exert efforts to participate in the standard-setting process (Decision B, F_i) depends on the attractiveness of participating in the standard-setting process (Decision A from the valence model [V_j]) and the expectancy of being able to adequately participate in the process (E_{ij}). Table 3, Panel A, presents the mean results for the participants' individual regressions.[8]

At 0.784, the mean adjusted R^2 is very high, indicating the appropriateness of the force model in explaining practitioners' motivation to participate in the standard-setting process.[9] The valence of participating in the standard-setting process (*Val*) has a mean beta weight of 0.837 that is significantly higher ($p = 0.000$, 2-tailed) than the expectancy of being able to participate adequately ($Exp = 0.230$). The strong negative correlation noted between valence and expectancy (-0.671) indicates that participants generally focused on either valence or expectancy in reaching their decision about effort. Actually, in all but five cases, the valence of participating in the standard-setting process is higher than the expectancy. The latter dominates in four cases and the expectancy beta weight is similar to the valence beta weight for one individual. Prior research findings also show a dominance of valence over expectancy as a motivational force (Harrell and Stahl 1986, Griffin and Harrell 1991, Snead and Harrell 1994, Geiger and Cooper 1996, Chen and Hoshower 1998, Geiger *et al.* 1998, Chen and Lou 2004).

As for the valence model, various analyses of the force model regression results were performed in relation to the respondents' demographic characteristics. There are no significant differences for primary area of expertise or the size of the firm.[10]

Analysis of the force model regression results according to gender (Table 3, Panel B) indicates that women are more motivated than men to participate to the standard-setting process (mean adjusted $R^2 = 0.875$ vs. 0.750, $p = 0.000$). This is explained by the fact that women are more attracted to participating than men ($Val = 0.893$ vs. 0.816, $p = 0.008$). Campbell *et al.* (2003) also obtained a gender difference in favour of women but for the expectancy variable.

Directors in accounting firms seem to be more motivated than partners to participate in the standard-setting process (mean adjusted $R^2 = 0.853$ vs. 0.770, $p = 0.039$, Table 3, Panel C). The attractiveness of participating ($Val = 0.886$ vs. 0.826, $p = 0.058$) is again the explanatory factor. A possible explanation for this greater motivation may be that, as already noted, directors are more attracted due to the second-level outcome related to the increased interest of private enterprises for audit or review vs. compilation engagements. Their chances of becoming a partner in their firm could be enhanced by such a shift in engagement type.

Study participants have different levels of previous participation in the standard-setting process: some have participated only once and others several times. In order to analyse the force model regression results according to the degree of participation, the sample was split into practitioners who participated three or more times and those who participated less. According to the results set

Table 3. Force model regression results ($n = 73$).

	Mean	Standard deviation	Range	Frequency of significance at 0.05 level
Panel A: Regression results				
R^2 (adj.)	0.784	0.162	0.364 to 1.000	73/73
Std beta weight				
Exp[a]	0.230	0.217	−0.252 to 0.694	36/73
Val	0.837	0.132	0.474 to 1.000	73/73
Panel B: Analysis according to gender				
		Mean – men $n = 53$	Mean – women $n = 20$	p-value of t-test
R^2 (adj.)		0.750	0.875	0.000
Std beta weight				
Exp		0.240	0.205	0.551
Val		0.816	0.893	0.008
Panel C: Analysis according to position in accounting firm				
		Mean – partners $n = 61$	Mean – directors $n = 10$	p-value of t-test
R^2 (adj.)		0.770	0.853	0.039
Std beta weight				
Exp		0.231	0.232	0.989
Val		0.826	0.886	0.058
Panel D: Analysis according to degree of participation				
		Mean – 3 times or more $n = 24$	Mean – less than 3 times $n = 49$	p-value of t-test
R^2 (adj.)		0.810	0.772	0.347
Std beta weight				
Exp		0.154	0.267	0.035
Val		0.871	0.820	0.128

Exp = expectancy of being able to participate adequately in the standard-setting process.
Val = valence of participating in the standard-setting process.
[a] Pearson correlation between *Exp* and *Val* = −0.671 ($p = 0.000$, 2-tailed); t-test between *Exp* and *Val*, $p = 0.000$ (2-tailed).

out in Table 3, Panel D, the expectancy of being able to participate adequately given the available time and resources is less important to practitioners who participate more frequently than to those who participated only once or twice (*Exp* = 0.154 vs. 0.267, $p = 0.035$). Thus, being able to participate adequately explains the latter's motivation to participate to a greater extent.[11]

Accordingly, overall, the motivational force to exert efforts to participate in the standard-setting process is adequately explained by the valence or attractiveness of participating in this process and the likelihood that the practitioner would have sufficient time and resources to participate adequately in this process. These two variables explain 78.4% of the variation in the motivational force to participate. This level is comparable to or better than those obtained in studies of student motivation to exert academic effort (Geiger and Cooper 1996, Geiger *et al.* 1998) and to participate in course (Chen and Hoshower 1998) or peer evaluations (Chen and Lou 2004), where the percentage of variation explained is from 61 to 79%. It is also in the same range as the 71–83% of variance explained in studies of managers' intentions to use a decision support system (Snead and Harrell 1994) or to implement just-in-time procedures (Griffin and Harrell 1991).

Our findings confirm and extend those provided by previous participation choice research suggesting that costs and benefits are determinants of participation (e.g. Francis 1987, Schalow 1995, Ang and Gallery 2000). Participation is not only affected by expected benefits (second-level outcomes) and costs (availability of time and resources to participate adequately), but also by instrumentality, that is, the extent to which participation would lead to attaining the expected benefits.

6. Conclusion, limitations, policy implications and suggestions for future research

The objective of this study was to gain insight into practitioners' decisions to participate in the standard-setting process (participation choice) using Vroom's expectancy theory (1964). The results suggest that the three second-level outcomes used in this study and the instrumentalities, that is, the variables of the valence model, are determinants of the attractiveness of becoming involved in the standard-setting process by submitting a comment letter. Further, the variables of the force model, that is, the attractiveness of participating in the standard-setting process and the expectancy of being able to participate adequately, are determinants of a practitioner's motivation (behavioural intention) to participate in the standard-setting process.

Of the three second-level outcomes, the majority of practitioners feel that having the content of accounting standards more adapted to the needs of private enterprises is the most attractive. In the force model, valence dominates expectancy as the motivational force for participating in the standard-setting process, particularly for women and directors in accounting firms. Finally, practitioners that have submitted three or more comment letters place less emphasis on the expectancy of participating adequately than those that have participated once or twice. In summary, the successful application of expectancy theory in this study enables a better understanding of practitioners' motivation to participate in the standard-setting process.

Small accounting firms, which make up the major part of our sample, have traditionally asked for simplified accounting standards for private businesses. Their clientele is composed almost exclusively of private businesses that see no benefits in the increasingly complex accounting standards prevalent in today's era of globalisation. This clientele is not willing to pay additional professional fees to deal with these complexities and often decides to switch from audit and review engagements to compilation engagements. This downgrading adversely impacts practitioners' professional fees.

Small firm practitioners also have to deal with auditing and review standards designed for public businesses and incur the related additional costs that their clients are unwilling to bear. Given this situation, practitioners would submit a comment letter if it would lead to adapted accounting and auditing standards and a renewed interest in audit and review engagements. It is worth noting that 86 practitioners actually filed a comment letter in response to the exposure draft, *Generally Accepted Accounting Principles for Private Enterprises*.[12] This represents 55% of the 157 comment letters submitted and constitutes a significant level of participation as compared to single-subject standard-setting proposals launched by the AcSB. For example, the *Cash Flow Statements* proposal in 1998 (AcSB 1998) and the *Stock-Based Compensation* proposal in 2001 (AcSB 2001), respectively, generated 74 and 24 comment letters from all stakeholder groups, including practitioners. These figures indicate practitioners' interest in the current GAAP for private enterprises proposal, as our findings explain. This participation rate, together with our sampled practitioners' participation in the discussion paper *Financial Reporting by Private Enterprises* (AcSB 2007) and the proposed *Framework for Owner Managed Enterprises* (CICA 2007), illustrates practitioners' sustained interest in the issue of financial reporting for private enterprises.

Our findings help fill a gap in the literature on participation. Previous studies drawing on positive accounting theory, the economic theory of democracy, the economics of regulation and agency theory explained participation using cost–benefit frameworks, but most of them did not explicitly incorporate the ability to influence the outcome in their research designs. Expectancy theory captures not only benefits, represented by second-level outcomes and costs, represented by expectancy (i.e. available time and resources to participate adequately), but also instrumentality, that is, the extent to which participation would lead to attaining the expected benefits. Moreover, the use of expectancy theory requires the contextualisation of expected benefits, thus providing a more comprehensive understanding of participation.

Our findings have several policy implications at national and international levels. First, they suggest that there should be more coordination between accounting and assurance standard-setting. The practitioners in our sample were highly motivated to respond to the accounting exposure draft if their comments would result in audit and review standards that would be adapted to the new accounting standards applicable to private enterprises. In Canada and elsewhere, distinct standard-setting bodies develop accounting and assurance standards. However, overlapping issues should be considered concurrently by both bodies.

Second, instrumentality plays a significant role in practitioners' intentions to participate. This means that stakeholders must feel they have a real opportunity to influence the content of accounting standards, and that the due process is not merely a symbolic tactic to encourage stakeholders to believe their voice can be heard (Fogarty *et al.* 1992, Fogarty 1994). Although it is impossible for a standard setter to satisfy the conflicting preferences of all its stakeholders (Demski 1973), the justification of decisions is of the utmost importance to demonstrate that the stakeholders' views were at least considered and to explain why these views were not reflected in the final standards, where applicable.

This study has some limitations that need to be discussed. First, we did not use a random sample. Since we selected practitioners that had knowledge of and an interest in the topic, caution should be exercised before generalising the results to include all Canadian practitioners. Second, whereas practitioners were provided with three possible outcomes of their participation, their behavioural intentions may be motivated by important outcomes other than those indicated. However, the three outcomes were carefully identified by a literature review and our values of R^2 suggest that the variables considered in the design explain a significant proportion of the variation in the dependent variables. Third, we used only two levels of instrumentality and expectancy (10 and 90%). In reality, a broader range of levels probably exists, but for practical reasons, we had to limit ourselves to the use of only two. This enabled us to use a complete factorial design in which each respondent received all the possible combinations of scenarios, thus contributing to the robustness of our findings. Finally, we studied only one form of participation (comment letters). Since practitioners may be motivated to participate differently (Georgiou 2004), our research design could be used in future research to examine other forms of participation intentions.

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Notes

1. Whereas some authors have alleged that lobbyists may theoretically adopt strategic behaviors in a multi-period/multi-issue standard-setting context (Amershi *et al.* 1982), the large increase in practitioners' participation in projects relating to financial reporting by private enterprises in comparison to their participation in other standard-setting projects (see Section 6) suggests that the context-dependency factor is not trivial in our study.

2. The application of IFRS for SMEs is also expected to have an incidence in the USA. In this country, smaller companies are allowed to prepare their financial statements using an Other Comprehensive Basis of Accounting (OCBOA), such as the income tax basis or the cash basis, as an alternative to the complexity of GAAP (O'Dell 1991, Williams 2005). The IFRS for SMEs may now represent another reporting alternative for US private companies (Fitzpatrick and Frank 2009).
3. A publicly accountable enterprise is an entity that has issued, or is in the process of issuing, debt or equity instruments that are, or will be, outstanding and traded in a public market (a domestic or foreign stock exchange or an over-the-counter market, including local and regional markets), or that holds assets in a fiduciary capacity for a broad group of outsiders as one of its primary businesses (CICA 2010a).
4. Forty-eight responses (59%) were received before and 33 after (41%) the reminder. We tested for non-response bias by comparing respondents' demographics and responses for Decisions A and B before and after the reminder. There were no significant differences for any of these variables.
5. One regression could not be performed as there was no variability in the dependent variable. The average adjusted R^2 for the five non-significant regressions was 0.008, with a range of -0.179 to 0.253. This situation is a sign of randomness in these participants' responses to the various scenarios.
6. Nevertheless, the attractiveness of the first outcome may also go beyond self-interest and indicate a genuine interest in having the content of accounting standards more adapted to the needs of private enterprises.
7. Previous studies on participation did not address possible differences in participating behavior according to gender, position in the firm and area of practice. Deegan *et al.* (1990) found no impact of the size of the firm on their position choice. As for the frequency of participation, it was indicated in footnote 1 that some lobbyists may adopt strategic behaviours in a multi-period/multi-issue standard-setting context. Hence, it is pertinent to examine whether the explanatory variables in the valence and expectancy models are given differing weights (importance) depending on the frequency of participation.
8. Seventy-three of the 75 individual regressions were significant for the force model. One regression could not be performed as there was no variability in the dependent variable. The adjusted R^2 for the other non-significant regression was 0.005.
9. Vroom (1964) originally assumed that individuals use a multiplicative processing model. However, later research has found that most individuals employ additive force models when forming their behavioural intentions rather than the multiplicative form (Stahl and Harrell 1981, Harrell and Stahl 1984, Harrell *et al.* 1985, Griffin and Harrell 1991, Snead 1991, Snead and Harrell 1994, Geiger and Cooper 1996). As in Snead and Harrell (1994) and Geiger and Cooper (1996), hierarchical regression analysis was employed for each respondent to determine if he or she was using multiplicative information processing. This is the case when the R^2 of a regression model containing the additive main effects and the multiplicative combination of expectancy and valence shows a significant increase ($p \leq 0.05$) over a model containing only the additive main effects. Only nine respondents were exhibiting multiplicative information processing. Further, the increase in R^2 that resulted from including the interaction term in the regressions was small (mean of 0.15, median of 0.107). These results are consistent with prior research cited above. Thus, the additive form of the force model seems to have adequately captured the practitioners' motivational force to participate in the standard-setting process and was used to analyse participants' responses.
10. The Big 4 auditing firms normally submit comment letters in response to all exposure drafts, irrespective of the topic addressed herein. To control for any possible effect from respondents that were possibly from Big 4 firms, responses of the four respondents from the largest firms in the sample were compared to those of all other respondents. There were no differences between these two groups at $p \leq 0.05$ for any of the variables from the force or valence models except for the mean beta weight for the valence of having the content of accounting standards more adapted to the needs of private enterprises (*Acc Std*) (std beta weight of 0.809 for the 4 respondents from large firms and 0.591 for the 71 other respondents, $p = 0.041$, Mann–Whitney test). The importance granted to having adapted standards for private enterprises might be explained by the desire of Big 4 firms to have the best set of standards for their clients whatever their type, which is in line with the fact that they usually respond to all exposure drafts.
11. Results for gender, position in accounting firm and degree of participation are similar even if we exclude the participants from the four largest firms.
12. Since responses to our questionnaire were anonymous, it is not possible to know which of our respondents subsequently filed a comment letter in response to the exposure draft. Therefore, we cannot analyse our results in terms of respondents who filed a comment letter and those who did not.

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Appendix

Instructions

The Accounting Standards Board (AcSB) of the Canadian Institute of Chartered Accountants is in the course of developing a separate 'made in Canada' set of financial reporting standards for private enterprises. Using the existing *CICA Handbook* as a starting point, the AcSB reconsidered sections that were not relevant to private enterprises, or which caused significant concerns for private enterprises in the past. Disclosure requirements were also re-evaluated. The AcSB issued its exposure draft of the proposed standards for private enterprises in April 2009. As a practitioner, you may choose to participate in the standard-setting process by submitting a comment letter in response to the exposure draft. We are interested in practitioners' decisions to participate in the standard-setting process.

This questionnaire presents 16 hypothetical situations. The wordings of each of the 16 situations are identical. Only the associated likelihoods differ, that is, the likelihood of attaining certain outcomes should you choose to participate in the standard-setting process by submitting a comment letter and the likelihood of your being able to participate effectively in the standard-setting process given the time and resources available to you.

You are asked to make two decisions for each situation:

- Based on the assigned likelihood of achieving the three specified outcomes, you must first decide how *attractive* it would be for you to submit a comment letter in response to the exposure draft (DECISION A).
- Next you must decide how much *effort* to exert in submitting a comment letter (DECISION B), given the likelihood provided regarding the time and resources available to you to adequately prepare a comment letter.

Use the information provided with respect to the likelihoods in each situation to reach your decisions. There are no 'right' or 'wrong' responses, so express your opinions freely.

The 16 situations differ only with respect to the likelihoods. They start on the next page.

Example scenario

If you submit a comment letter in response to the exposure draft on the proposed standards for private enterprises, **the likelihoods** of attaining the following outcomes are:

Outcome	***Likelihood***
The content of accounting standards would be more adapted to the needs of private enterprises	***HIGH (90%)***

The interest of private enterprises for audit or review engagements vs. compilation engagements would increase. . . . . *LOW (10%)*
Audit and review standards would be adapted to the new accounting standards applicable to private enterprises. . . . . *HIGH (90%)*

DECISION A: With the above outcomes and associated likelihood levels in mind, indicate the attractiveness to you of submitting a comment letter in response to the exposure draft on the proposed standards for private enterprises.

−5	−4	−3	−2	−1	0	+1	+2	+3	+4	+5
Very unattractive										Very attractive

FURTHER INFORMATION: Preparing a comment letter may require you to exert a great deal of effort. The **likelihood** that you will have sufficient time and resources to adequately prepare a comment letter is. . . . . *HIGH (90%)*

DECISION B: Keeping in mind your attractiveness decision (DECISION A) and the likelihood provided in the FURTHER INFORMATION above, indicate the level of effort you would exert in preparing a comment letter in response to the exposure draft on the proposed standards for private enterprises.

0	1	2	3	4	5	6	7	8	9	10
Zero effort										Great deal of effort

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Do fair value adjustments influence dividend policy?

IGOR GONCHAROV* and SANDER VAN TRIEST

Amsterdam Business School, Universiteit van Amsterdam, Plantage Muidergracht 12, 1018 TV Amsterdam, The Netherlands

We examine the impact of positive fair value adjustments on dividend policy. If fair value adjustments are transitory in nature and managers are able to assess their implications for future earnings, fair value adjustments in net income is expected to have no distribution consequences. However, positive fair value adjustments may lead to higher dividends when management incorrectly assesses their persistence. This can have a procyclical impact because higher dividends increase leverage, and thus risk. We use a Russian setting that mandates fair value accounting for financial instruments and requires disclosure of unrealised fair value adjustments in income. We find no empirical support for the concern that dividends increase in response to positive fair value adjustments. Rather, there is a negative relationship between positive fair value adjustments and dividend changes, which holds after controlling for dividend policy determinants and any endogenous nature of the revaluation decision. We discuss several possible explanations for this finding.

Keywords: fair value accounting; dividend policy; earnings persistence

1. Introduction

Fair value measurement is becoming increasingly important in accounting standards. Regulators suggest that fair values lead to improved financial reporting, because fair value numbers are timely and more reliable as a decision mechanism (e.g. FASB 2000, para. 36). Consequently, investors should benefit from the introduction of fair value accounting because it allows them to make better and more informed decisions (Barth and Landsman 1995, Barth 2007). However, fair value accounting can lead to large transitory changes in net income (Penman 2007, Plantin *et al.* 2008). If relevant stakeholders fail to correctly assess the information in earnings components, incorporating volatile fair value adjustments in net income may introduce noise in decision-making (Petroni and Wahlen 1995, Cornett *et al.* 1996, Hung and Subramanyam 2007). To examine whether fair value accounting has an effect on decision-making, we investigate the impact of mark-to-market adjustments on dividend policies.

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*Corresponding author is currently at WHU – Otto Beisheim School of Management, Germany. Email: igor.goncharov@whu.edu

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We assess the effect of positive fair value adjustments on dividends using the framework of Lintner (1956), which formalises the link between dividends and earnings components (Jagannathan *et al.* 2000, Brav *et al.* 2005). The Lintner framework states that firms aim for a stable dividend development in relation to their earnings. If firm management correctly assesses the implications of transitory fair value increments for future earnings, fair value adjustments are not distribution relevant, and no relationship between fair value adjustments and dividends is expected. However, if management judges the adjustments to be persistent, this may impact dividend distributions. Regulators have expressed concerns that positive fair value adjustments will lead to increased dividend payouts and through this to increased leverage (Enria *et al.* 2004). This may result in firms being financially over-extended and vulnerable to economic shocks (Eckstein and Sinai 1986, Bernanke *et al.* 1996). Thus, if management increases dividends following positive fair value adjustments, this would support the assumption that fair value accounting can induce an excessive degree of procyclicality, that is, amplify swings in the real economy (Plantin *et al.* 2008, Laux and Leuz 2009). Therefore, whether and how dividend policy is influenced by fair value accounting is an important empirical question.

We examine the impact of positive fair value adjustments on dividend policy in a sample of over 4000 firm-year observations of Russian listed firms during the period 2003–2006. These years represent a period of strong economic growth, effectively preceding the financial crisis, which hit Russia in 2008. Russian accounting standards mandate marking financial assets to their current market values, which were generally higher due to favourable economic conditions. Furthermore, companies are required to report fair value adjustments in income and disclose the total amount of unrealised fair value adjustments in the footnotes. This provides a unique opportunity to directly examine the role of unrealised fair value adjustments in decision-making.

We find that positive fair value adjustments are associated with relatively lower dividend payouts. That is, the dividend payout of revaluing firms is lower than expected based on the level of core earnings and economic circumstances. This result holds after controlling for other determinants of dividend policy. We also exclude self-selection as a potential alternative explanation for our findings. Thus, rather than leading to higher dividend payments, positive fair value adjustments are associated with relatively lower dividends. We suggest several explanations for this finding.

We contribute to the literature on the economic consequences of fair value accounting. Fair value accounting has been argued to exacerbate swings in the financial system by either increasing leverage during periods of growth (Boyer 2007, Caruana and Pazarbasioglu 2008, Plantin *et al.* 2008) or by inducing contagion in financial markets during economic downturns (IMF 2008, Plantin *et al.* 2008, Hellwig 2009). The former is often proposed to be triggered by a distribution of unrealised fair value adjustments (Caruana and Pazarbasioglu 2008, Viñals 2008). While there is a concern that fair value accounting is procyclical and increases leverage during growth periods, the empirical evidence on whether fair value accounting affects decision-making is scarce (Beatty 2007). We show that mark-to-market accounting for financial instruments does not increase dividends during the period of economic growth.

The paper is structured as follows. In the next section, we provide a theoretical background for the relationship between dividends and earnings components, and the possible impact of fair value accounting. In Section 3, we discuss the research setting and the requirements of the relevant Russian accounting standards. Section 4 reports results of the analysis, while we finish with a conclusion in Section 5.

2. Theoretical background and hypothesis development

2.1 *Earnings persistence and dividends*

The importance of accounting information in determining dividends for distribution is well established (Jensen and Meckling 1976, Watts 1977). The formal link between reported earnings and dividends is proposed in the seminal work of Lintner (1956). According to Lintner's partial adjustment model, companies aim to pay out a certain per cent of permanent or core earnings as dividends and slowly adjust their current payouts to the target ratio.[1] This implies that dividends (or dividend changes) can be modelled as a function of current earnings and past dividend policy, as has been found by a number of studies. Fama and Babiak (1968) show that in a sample of US firms dividend changes are explained 'fairly well' by a regression model including current dividends, lagged earnings and a constant term. DeAngelo *et al.* (1992) report that for US firms, the decision to cut dividends is strongly influenced by net income in the years surrounding the dividend decision. The link between earnings and dividends is also found in more recent US data (Jagannathan *et al.* 2000, Brav *et al.* 2005). The evidence outside the US capital market is limited, but points in the same direction. Examining the performance of the Lintner model for the German capital market, Goergen *et al.* (2005) show that earnings are the key determinant of dividend changes. Kasanen *et al.* (1996) find that Finnish companies manage earnings in order to meet dividend thresholds.

The Lintner model predicts that dividends are related to permanent earnings components, while transitory components are not distributed (Jagannathan *et al.* 2000). In this regard, Kormendi and Zarowin (1996) find that dividend payouts are higher for firms with more persistent earnings. Skinner (2004) shows that the earnings–dividends link deteriorates if income includes discretionary components that make current income a less precise indicator of long-run performance. Edwards and Mayer (1985) find that managers of the largest UK companies reduce dividends only when they are facing a persistent decline in earnings, which suggests that transitory components are not distribution relevant. Grullon *et al.* (2002) make a similar point with respect to dividend increases and a *persistent* increase in earnings. Finally, Jagannathan *et al.* (2000) find that in a regression of dividend changes on a proxy for a permanent income component and a proxy for a transitory income component, only the former significantly affects dividend changes.

2.2 *Hypothesis development*

Since fair values incorporate market expectations about future cash flows and reflect present economic conditions, fair value reporting is expected to increase the transparency and decision relevance of accounting information (Barth and Clinch 1998, Barth *et al.* 2001, Hitz 2007). However, mark-to-market accounting also introduces additional transitory components in the income statement, which may increase the volatility of aggregate income and reduce the ability of managers and investors to accurately assess the long-run performance on which to base the dividend payout (Petroni and Wahlen 1995, Cornett *et al.* 1996, Hung and Subramanyam 2007). Prior studies point to three reasons for an increased volatility under a fair value regime: (i) a transitory change in the underlying economics, (ii) a failure to match changes in the fair value of assets recognised at fair value with negatively correlated changes in the fair value of liabilities not recognised at fair value (Penman 2007, Plantin *et al.* 2008), and (iii) the inclusion of bubble prices into financial statements (Penman 2003). If stakeholders fail to efficiently assess the implications of volatile earnings components for future earnings (Sloan 1996, Xie 2001), fair value adjustments may 'provide more noise than information to capital providers and other users of financial information' (CAS Task force 2002, p. 9). Furthermore, Ball (2006) argues that if fair value accounting introduces noise into decision-making, it might increase the risks faced by the users of accounting information.

Extant literature suggests that dividends are not related to volatile earnings components (Lintner 1956, Jagannathan *et al.* 2000). To the extent that the fair value adjustments are persistent, this persistent part should influence the dividend distribution. If fair value adjustments are transitory and thus have no impact on the underlying or core earnings (Ohlson 1999), we predict no relationship between positive fair value adjustments and dividends, assuming that stakeholders are able to assess the implications of fair value adjustments for future earnings. That is, the relationship between core earnings and dividends persists after introducing a positive fair value adjustment. This leads to our hypothesis:

H1: Positive fair value adjustments have no distribution consequences.

The hypothesis has two underlying assumptions: fair value adjustments are transitory and relevant stakeholders (management which proposes the dividend and shareholders who approve it) assess the persistence of the fair value adjustments correctly. In this respect, previous studies suggest that managers exhibit over-optimism and tend to overestimate implications of current earnings for future earnings (Jensen 1993, DeAngelo *et al.* 1996). Similarly, there is evidence that investors fail to correctly assess the persistence of earnings components (Sloan 1996, Hirshleifer *et al.* 2004). When the persistence of fair value adjustments is overestimated, positive revaluations may be distributed as part of bottom-line income. This line of argument is consistent with the concern of the European Central Bank (ECB) that during economic upturns relevant stakeholders may be overly optimistic, possibly resulting in unrealised fair value adjustments being distributed as dividends (Enria *et al.* 2004, p. 8).

If H1 is rejected in favour of a positive effect of fair value adjustments on dividends, introducing fair value accounting may have unintended consequences and increase risk through a procyclical impact. During economic upturns, fair value adjustments will be mostly positive. If they are distributed, leverage increases. In a banking setting, where fair value adjustments are likely more prevalent than in non-financial sectors, both the International Monetary Fund (IMF) and the ECB stress the importance of aligning dividend payouts with core earnings rather than with transitory adjustments. The IMF states that 'dividend distributions should only come from realised earnings that are not biased by upward cyclical moves [due to fair value adjustments]' (2008, p. 129). The ECB suggests that distributing positive fair value adjustments will inhibit banks' ability to respond to economic shocks, reducing the efficiency and stability of the financial system (Enria *et al.* 2004, p. 8). Similarly, the Banco de España notes that fair value accounting 'may affect the behaviour of bank managers, encouraging undesirable behaviour in terms of appropriate risk management. Thus [. . .] a revaluation of assets [. . .] might lead to an increase in the dividend payout to shareholders, restricting institutions' capacity to soften intertemporal shocks' (Viñals 2008, p. 124).

3. Research setting

3.1 *Accounting for financial investments in Russia*

We analyse our hypothesis by examining evidence from Russia, since Russian firms are required to report the information which is needed for our tests. Russian accounting standards mandate mark-to-market accounting for financial investments with changes in fair values reported in net income. The exact amount of unrealised fair value adjustments has to be disclosed in the footnotes, whereas the disclosure requirements of the relevant international accounting standard IAS 32 only encouraged reporting this amount during our sample period. Accordingly, previous studies have analysed the effect of fair value accounting on decision-making indirectly, by concentrating on the changes in economic behaviour surrounding the introduction of fair value rules (Beatty 1995, Hodder *et al.* 2002, Zhang 2009). Thus, we have a unique setting that allows us to directly assess the economic implications of unrealised fair value adjustments. Furthermore, the standard mandates fair value accounting only when it is possible to determine the value by reference to a market. Concentrating on mark-to-market increments allows isolating the contaminating effects of more subjective and potentially unreliable mark-to-model estimates.

Accounting in Russia is largely regulated by the Law on Accounting and the Russian Accounting Standards (RAS). The Regulation of 16 March 1998 N 223 'On Reforming the Russian Accounting Standards in Accordance with the International Financial Reporting Standards' presented a way to move RAS towards IFRS. RAS 19/02 of 10 December 2002 ('Accounting for Financial Investments') is the counterpart to IAS 39. It applies to all financial statements prepared in the fiscal year 2003 and thereafter. Although substantially shorter than IAS 39, RAS 19/02 does require extensive use of fair value accounting. Financial investments – defined to include investments in subsidiaries – have to be initially recognised at fair values (which the standard calls 'current market values'). Subsequent measurement depends on the ability of an entity to assess the fair value of a financial instrument. Financial investments for which it is possible to determine their fair value by reference to a market should be subsequently revalued at fair value. Non-quoted instruments are carried at a lower of cost or current estimated value.

For quoted instruments, the assessment of current market value and revaluation should take place at least annually and is allowed to be carried out on a monthly or quarterly basis. The changes in fair value are recognised in the income statement, usually at the line 'other income'. A rather unique feature of RAS 19/02 is the requirement to disclose the total amount of unrealised fair value adjustments in the notes to financial statements.

3.2 *Dividend policy of Russian firms*

Dividend distributions in Russia are regulated by the Law on Stock Corporations, which guarantees a right of shareholders to receive a dividend (para. 31.2). Similar to other countries, shareholders vote on dividends during the shareholder meeting, and the proposed dividends are based on the recommendation by the Board of Directors. However, a dividend payout is limited to the amount proposed by the Board (para. 42.3). A further constraint on dividend payouts is a prohibition of distributions during financial distress or bankruptcy.

To the best of our knowledge, there is no systematic evidence on dividend policies in Russia. To provide some description, we compare the dividend policies of Russian companies to dividend policies in European countries and emerging markets reported in previous studies (Mitton 2004, Denis and Osobov 2008, von Eije and Meggison 2008). These studies rely on Worldscope data and report information on dividend payouts and the propensity to pay dividends as late as 2003. As the database coverage is biased towards larger firms, we also rely on Worldscope and replicate the data selection procedure in Denis and Osobov (2008) to obtain comparable statistics for the Russian market.[2] This leads to a sample of 110 firm-year observations over the period 2000–2003.

We compare the magnitude of dividend payout and the propensity to pay dividends. Average dividend payout is 10% of net income in 2000, growing to 23% of net income in 2003. The average payout ratio for the sub-sample of firms with non-zero dividends ranges between 15 and 34%. While the dividend payout ratio in Russia is smaller than in major EU markets (e.g. French companies distributed 40–50% of profit during the same period), both the Russian and the EU market show an upward trend in payouts between 2000 and 2003 (von Eije and Meggison 2008). Relative to other emerging markets, the dividend-to-income and the dividend-to-sales ratio of Russian companies is close to payouts reported for South Korea (Mitton 2004). Low dividend payouts in Russia may be explained by a need of funds for modernisation and growth and by weak investor protection (La Porta *et al.* 2000).

While the dividend payouts of Russian companies tend to be low, the number of dividend paying companies is high. For example, 62% of sample companies paid dividends in 2002. This compares with 19% in the USA, 51% in Germany and 63% in France in the same year

(Denis and Osobov 2008). Furthermore, while developed markets show a decrease in the propensity to pay dividends, the percentage of dividend payers in Russia remains relatively stable at 67% in 2000 and 68% in 2003.

4. Empirical findings

4.1 *Sample selection and descriptive statistics*

We analyse a sample of Russian public companies listed on RTS, RTS Board and/or MICEX. The data is obtained from the information disclosure agency SKRIN, which provides detailed financial data for a comprehensive set of Russian public companies.[3] SKRIN is a part of the RTS Group, the operator of the Russian Trading System (RTS), and obtains financial data directly from the issuers. Our sample period spans 2003–2006, where 2003 is the first year when financial investments had to be revalued in accordance with RAS 19/02. We use firm-years with available accounting data and delete a small fraction of observations reporting downward fair value adjustments ($n = 9$) as they are not a focus of our analysis.[4] Our final sample consists of 4424 firm-year observations representing 1179 unique firms. The proportion of firms paying dividends is 70%, which makes the SKRIN sample comparable to the previously used Worldscope data in terms of the propensity to distribute funds.

Table 1 reports descriptive statistics for the test variables. Surprisingly, during the sample period, less than 2% of the sample companies performed a revaluation of long-term or short-term financial assets, even though in 96% of the sample firm-years an investment in short-term or long-term financial assets is reported. However, it is not possible to infer which investments were quoted and thus should be revalued according to RAS 19/02.

4.2 *Univariate results*

We first conduct a series of univariate tests. Hypothesis 1 predicts that fair value adjustments have no distribution consequences. We analyse this impact by evaluating the changes in dividends of revaluing firms relative to non-revaluing firms. Using a first difference in dividends in univariate and multivariate tests has an advantage over using the level of dividends, as it controls for

Table 1. Descriptive statistics.

Variable	Mean	Std dev.	Q1	Median	Q3
NI_{it}	0.06021	0.18026	0.00158	0.03491	0.11132
NI_{it-1}	0.03747	0.18962	0.00065	0.02590	0.08613
REV_{it}	0.00018	0.00432	0	0	0
REV_D_{it}	0.01582	0.12480	0	0	0
ΔDIV_{it}	0.00485	0.03369	−0.00001	0	0.00502
DIV_{it-1}	0.00790	0.02397	0	0.00047	0.00722
$SIZE_{it}$	20.72505	1.84787	19.63802	20.66124	21.85203
LEV_{it}	0.19729	0.26373	0.01238	0.11180	0.30088
$GROWTH_{it}$	0.36433	1.35360	0.00641	0.17771	0.37946
$CASH_{it}$	0.03606	0.06899	0.00272	0.01146	0.03713

Note: Data sample represents 4424 firm-year observations of Russian public companies listed on RTS, MMVB and/or RTS Board. NI_{it} (NI_{it-1}) is net income in year t ($t-1$), while REV_{it} is positive fair value adjustments due to revaluations of short-term and long-term financial assets in year t. REV_D_{it} is an indicator variable equalling one if a company revalued financial assets in year t and zero otherwise. DIV_{it-1} and ΔDIV_{it} are lagged dividends and change in dividends, respectively. All variables except indicators are scaled by average total assets. $SIZE_{it}$ is the natural logarithm of total assets at the beginning of the year, while LEV_{it} is financial leverage defined as a ratio of total debt to total assets. $GROWTH_{it}$ is percentage change in sales. $CASH_{it}$ is cash balance defined as cash scaled by average total assets.

unobservable characteristics as long as they are fixed at a firm level (Francis and Lennox 2008). Furthermore, we account for scale differences across firms, as our tests may be unduly influenced by observations with large scale (Easton 1998, Easton and Sommers 2003). Lo and Lys (2000), for example, show that a failure to control for scale in tests using dividends may lead to spurious inferences. We use two approaches to deal with scale differences. First, treating scale as a correlated omitted variable (Barth and Kallapur 1996), we correct for the scale by regressing firm-level dividend changes on the natural logarithm of total assets. We use the residual from this regression as our measure of scale-adjusted dividend changes. Second, we deflate by size, as measured by average total assets (see Easton and Sommers 2003 for arguments in favour of deflation).

Panel A of Table 2 shows that while 36% of firms in the non-revaluation sub-sample report higher dividends, only 14% of firms reporting positive fair value adjustments increase their dividends. The difference is significant based on a χ^2-test. Panel B compares the means of dividends and shows that dividends are significantly lower in the revaluation sub-sample ($p = 0.021$ for scale-adjusted dividends and $p = 0.039$ for dividends deflated by total assets). Adjusting (average) total assets for the effect of revaluation leads to very similar results (untabulated p-values equal 0.021 and 0.040, respectively). As an additional test, we also evaluate companies' payout ratios. Following H1, we expect firms with positive fair value adjustments to distribute a similar portion of core earnings (i.e. income before fair value adjustments) as non-revaluers. The final test in Panel B shows that the dividend changes-to-earnings ratio of firms reporting positive fair value adjustments is lower.[5] Altogether we reject H1: fair value adjustments do have distribution consequences. However, our empirical evidence also does not lend support for concerns that fair value adjustments lead to exaggerated payouts during the periods of economic growth. To the contrary, we find that dividend payouts of firms with positive fair value adjustments are lower.

Table 2. Univariate tests.

Panel A. Descriptive evidence

	Scale-adjusted dividend changes (n)		
	<0	≥0	Total
Non-revaluers	2798	1556	4354
Revaluers	60	10	70
Total	2858	1566	4424
χ^2-test			13.86***

Panel B. Comparison of the means

	N	Scale-adjusted dividend changes	Dividend changes to total assets	Dividend changes to earnings
Non-revaluers	4354	5495.7	0.00492	0.1754
Revaluers	70	−341,835.3	0.00031	0.0160
Difference (t-test)		2.36**	2.10**	2.58**

Note: The table reports comparisons between two samples: 'Non-revaluers' are observations with no fair value adjustments and 'Revaluers' are observations with non-zero upward revaluations. Data sample represents 4424 firm-year observations of Russian public companies listed on RTS, MMVB and/or RTS Board. Panel A reports the number of observations conditional on the sign of scale-adjusted dividend changes. The bottom of the panel reports the χ^2-test testing for an equal distribution of upward and downward dividend changes in both samples. Panel B compares the means between sub-samples. *Scale-adjusted dividend changes* is a residual from the regression of raw dividend changes on the natural logarithm of total assets. *Dividend changes to total assets* is the ratio of dividend changes to total assets. *Dividend changes to earnings* uses net income before fair value adjustments in the denominator (loss observations are deleted). *** and ** indicate statistical significance at the 1 and 5% levels (two-tailed), respectively.

4.3 *Multivariate tests*

Our hypothesis is conditional on the persistence of fair value adjustments. To assess the implications of upward fair value adjustments for future earnings, we use an earnings persistence regression similar to Sloan (1996). We regress net income on lagged net income before revaluations and lagged revaluation income, but results are very similar if we use net income before fair value adjustments as the dependent variable. We define the model as follows:

$$NI_{it} = \gamma_0 + \gamma_1 NIBREV_{it-1} + \gamma_2 REV_{it-1} + \xi_{it} \tag{1}$$

where NI_{it} is net income in year t, $NIBREV_{it-1}$ is net income before fair value adjustments in year $t-1$, and REV_{it-1} is the mark-to-market increment on (revaluation of) short-term and long-term financial assets in year $t-1$. All variables are scaled by average total assets as in Sloan (1996). We check the sensitivity of our multivariate results to the choice of deflator by re-scaling all variables by lagged total assets and average total assets adjusted for the effect of a revaluation. This mitigates the concern that revaluation affects the deflator via the current year's assets. These additional tests do not change the inferences of our analysis.

The sign and the magnitude of γ_2 depend on the persistence of positive fair value adjustments. If fair value adjustments are fully transitory the coefficient on REV_{it-1} is predicted to be zero. If fair value adjustments convey some information about future earnings, γ_2 should be larger than zero for good news and smaller than zero if fair value adjustments indicate a deterioration in future performance.

Results of estimating Model (1) are reported in Table 3. We use heteroscedasticity-corrected standard errors adjusted for clustering at the firm level (see Petersen 2009). There is no strong evidence to suggest that fair value adjustments are persistent. The coefficient on γ_2 reported in column (a) is not significant ($p = 0.401$). In column (b) we replace REV_{it-1} by REV_D_{it-1}, which is an indicator variable equalling one if a company revalued financial assets upwards in year $t-1$ and zero if no revaluation occurred. This mitigates the influence of extreme observations on our results. The coefficient on REV_D_{it-1} is positive and statistically significant ($p = 0.045$). According to H1 this may contribute to a positive relationship between fair value adjustments and dividends.

We next evaluate the impact of the revaluation and historical cost components on dividends. Isolating the effect of accounting standards requires a well-specified model of economic behaviour (Beatty 2007), which usually poses a challenge to empirical research on accounting choice. Our research design requires specifying a model for expected dividends to assess any impact of fair value accounting. We use Lintner's partial adjustment model (1956) to assess the relationship between earnings components and the dividend policy. Our initial set of independent variables is based on Fama and Babiak (1968), who use lagged dividends and current and lagged earnings. We again use total assets as deflator (Fama and French 2002). A similar model specification is used in Brav *et al.* (2005) and Goergen *et al.* (2005), but with some differences in the choice of the scale variable and the right-hand-side variables. We return to this issue in Section 4.4.

We run the following regression:

$$\Delta DIV_{it} = \alpha_0 + \alpha_1 NI_{it} + \alpha_2 NI_{it-1} + \alpha_3 DIV_{it-1} + \varepsilon_{it} \tag{2}$$

where ΔDIV_{it} and DIV_{it-1} are dividend changes from year $t-1$ to year t and lagged dividends, respectively; NI_{it} and NI_{it-1} are net income in year t and $t-1$. All variables are scaled by average total assets.

Table 3. Earnings persistence analysis.

Variables	(a)	(b)
Constant	0.044	0.044
	(7.40)***	(7.42)***
$NIBREV_{it-1}$	0.428	0.428
	(2.81)***	(2.81)***
REV_{it-1}	0.948	
	(0.84)	
REV_D_{it-1}		0.054
		(2.01)**
N	4424	4424
Adj. R^2	0.20	0.20

Note: ***, ** and * indicate statistical significance at the 1, 5 and 10% levels (two-tailed), respectively. Data sample represents 4424 firm-year observations of Russian public companies listed on RTS, MMVB and/or RTS Board. Dependent variable is NI_{it} net income in year t. Independent variables: $NIBREV_{it-1}$ is net income before fair value adjustments in year $t-1$. REV_{it-1} is positive fair value adjustments due to revaluations of short-term and long-term financial assets in year $t-1$. All variables are scaled by average total assets. REV_D_{it-1} is an indicator variable equalling one if a company revalued financial assets in year $t-1$ and zero otherwise. The t-statistics (in parentheses) are based on heteroscedasticity corrected standard errors adjusted for clustering at the firm level.

In the next step we decompose net income into net income before revaluation of financial investments (our proxy for core earnings) and fair value adjustments:[6]

$$\Delta DIV_{it} = \beta_0 + \beta_1 NIBREV_{it} + \beta_2 NIBREV_{it-1} + \beta_3 REV_{it} + \beta_4 DIV_{it-1} + \zeta_{it} \qquad (3)$$

where all variables are defined as previously. We evaluate whether H1 holds by looking at the sign and statistical significance of the coefficient on fair value adjustments (REV_{it}). If fair value adjustments are transitory and investors are able to assess their implications for future earnings, H1 predicts that fair value adjustments are not distributed and $\beta_3 = 0$. Given our inconclusive results on the persistence of fair value adjustments, we might also expect $\beta_3 > 0$. In contrast, if relevant stakeholders fail to correctly assess the persistence of fair value adjustments, we expect $\beta_3 > 0$ and $\beta_1 = \beta_3$. That is, firms pay out a similar proportion of fair value adjustments and core earnings.

Results of estimating Models (2) and (3) are shown in Table 4. Consistent with the Lintner framework and prior evidence, column (a) reports a negative coefficient on lagged dividends and a positive coefficient on contemporaneous net income. Similarly, the effect of income before revaluations reported in column (b) is positive and statistically significant. In contrast, the coefficient on REV_{it} is negative and statistically significant at the conventional level ($p = 0.031$). We find that after controlling for the level of core earnings, the association between positive fair value adjustments and the change in dividends is negative. This result is consistent with our univariate evidence and is robust to a number of alternative specifications. In column (c), we find a negative and highly significant coefficient on REV_D_{it}, indicating that our results are not driven by extreme cases. In columns (d) and (e), we extend the model and control for other determinants of the dividend policy. Noting that signalling (Bhattacharya 1979, Rees 1997, Fama and French 1998) and agency costs (Easterbrook 1984, Jensen 1986) have been proposed as drivers of dividend payouts, we extend the original Lintner framework by including $SIZE_{it}$, LEV_{it} and $GROWTH_{it}$ to control for the cross-sectional variation in the dividend policy (which might be correlated with the decision to revalue financial assets). $SIZE_{it}$ is the natural logarithm of total assets at the beginning of the year, LEV_{it} is financial leverage defined as the ratio of total debt to total

Table 4. Dividend policy analysis.

Variables	(a)	(b)	(c)	(d)	(e)
Constant	0.008	0.008	0.008	−0.021	−0.023
	(5.75)***	(5.76)***	(5.81)***	(3.51)***	(3.62)***
NI_{it}	0.010				
	(2.26)**				
NI_{it-1}	0.007				
	(2.09)**				
$NIBREV_{it}$		0.010	0.010	0.013	0.013
		(2.25)**	(2.27)**	(2.69)***	(2.70)***
$NIBREV_{it-1}$		0.007	0.007	0.007	0.007
		(2.09)**	(2.09)**	(1.97)**	(1.97)**
REV_{it}		−0.078		−0.085	
		(2.17)**		(2.09)**	
REV_D_{it}			−0.005		−0.008
			(3.05)***		(4.01)***
DIV_{it-1}	−0.464	−0.464	−0.464	−0.481	−0.482
	(2.97)***	(2.97)***	(2.97)***	(3.09)***	(3.10)***
$SIZE_{it}$				0.001	0.001
				(4.33)***	(4.42)***
LEV_{it}				0.011	0.011
				(3.61)***	(3.61)***
$GROWTH_{it}$				−0.001	−0.001
				(4.47)***	(4.45)***
$CASH_{it}$				0.004	0.005
				(0.55)	(0.60)
N	4424	4424	4424	4424	4424
Adj. R^2	0.11	0.11	0.11	0.12	0.13

Note: ***, ** and * indicate statistical significance at the 1, 5 and 10% levels (two-tailed), respectively. Data sample represents 4424 firm-year observations of Russian public companies listed on RTS, MMVB and/or RTS Board. Dependent variable is ΔDIV_{it} defined as change in dividends. Independent variables: NI_{it} (NI_{it-1}) is net income in year t ($t-1$), while $NIBREV_{it}$ ($NIBREV_{it-1}$) is net income before fair value adjustments in year t ($t-1$). REV_{it} is positive fair value adjustments due to revaluations of short-term and long-term financial assets in year t. REV_D_{it} is an indicator variable equalling one if a company revalued financial assets in year t and zero otherwise. DIV_{it-1} is lagged dividends. All variables except indicators are scaled by average total assets. $SIZE_{it}$ is the natural logarithm of total assets at the beginning of the year, while LEV_{it} is financial leverage defined as a ratio of total debt to total assets. $GROWTH_{it}$ is a percentage change in sales. $CASH_{it}$ is cash balance defined as cash scaled by average total assets. The t-statistics (in parentheses) are based on heteroscedasticity corrected standard errors adjusted for clustering at the firm level.

assets, while $GROWTH_{it}$ is the percentage change in sales. Furthermore, we control for financial constraints by including $CASH_{it}$, which is scaled cash balance. After including the additional control variables, the negative effect of fair value adjustments is somewhat more pronounced in economic and statistical terms.

Finally, to control for the conservative nature of dividend policy, we assess the sensitivity of our results to the trend in core earnings. We split the sample in firms reporting positive and negative core earnings change. Our analysis (untabulated) shows that the coefficient on REV_D_{it} in equation (e) is negative and equals -0.006 ($p = 0.006$) and -0.010 ($p = 0.002$) for a subsample of firms reporting an increase and a decrease in $NIBREV_{it}$, respectively.

4.4 *Robustness tests*

We conduct a number of sensitivity tests assessing the robustness of our results to the choice of model specification, set of independent variables and scaling. In terms of model specification, we note that Brav *et al.* (2005) and Leary and Michaely (2008) apply the Lintner model without controlling for lagged earnings. Our findings remain very similar when we estimate a restricted model with only the current level of earnings.

We further assess the sensitivity to the use of alternative scalers. Consistent with the model application in Goergen *et al.* (2005), we scale all model variables by book equity. This does not change the inferences of our analysis. While some recent studies estimate the Lintner model using per-share variables (e.g. Leary and Michaely 2008), scaling by the number of outstanding shares is unlikely to mitigate the scale bias (Easton 1998, Easton and Sommers 2003). We also note that our results are unlikely to be driven by the choice of the deflator, as our findings are similar when tests are replicated using firm-level unscaled data.

We also analyse whether other determinants of dividend payouts influence our results. We control for year fixed effects by including year dummies. The effect of industry affiliation (see La Porta *et al.* 2000) is measured by including a set of industry dummies. We manually assign companies to one of 11 industry groups based on the description of business activity reported in SKRIN. We use the NAICS industry classification in deriving 11 industries that include construction, transportation, mining and oil, and services as distinct categories. We also include company age, measured by the number of years since registration, and capital intensity, the ratio of fixed assets to total assets (Brav *et al.* 2005, DeAngelo *et al.* 2006). Finally, anecdotal evidence suggests that Russian firms may increase dividends prior to share offerings and subsequently decrease them. For example, utility companies that were spun off by Unified Energy System, increased dividends before going public (*RBK Daily* 11 April 2007 and 14 May 2007). Magnitogorsk Iron and Steel Co. paid out almost 90% of profit as dividends prior to its IPO in 2006, reverting this policy towards substantially lower dividends after the IPO (Freedmann 2008). Therefore, we control for net share issues, which we approximate as the change in book value of equity that is unexplained by dividends and net income.[7] The power of the tests increases only slightly after including these variables and our findings remain robust: the coefficients on REV_{it} and REV_D_{it} are significantly negative.

4.5 *Endogeneity issues*

Previous research suggests that companies may have substantial discretion in the timing of revaluation (Hilton and O'Brien 2009). Thus, the decision to revalue financial assets may be systematic. Issues of sample selection bias are rather typical for research on accounting choice (Beatty 2007), and they may bias the results of our tests. We employ propensity score matching to assess whether self-selection affects the inferences of our analysis. We model the revaluation decision as a function of factors that were previously found to affect accounting choice (Leuz 2003). We use the following probit regression:

$$REV\_D_{it} = \varphi_0 + \varphi_1 NIBREV_{it-1} + \varphi_2 SIZE_{it} + \varphi_3 LEV_{it} + \varphi_4 GROWTH_{it} + \varphi_5 CASH_{it} + v_{it} \quad (4)$$

where REV_D_{it} is an indicator variable equalling one if a company revalued financial assets in year t and zero otherwise. Our independent variables are profitability (defined as lagged return on average assets), size, leverage, growth and cash balance, where all variables are defined as previously. While the first four variables are typically used as accounting choice determinants, cash balance is included in the equation to test whether revaluations coincide with periods when firms are financially constrained.

Results for Model (4) are reported in Panel A of Table 5 and indicate that larger firms ($p < 0.001$), more profitable firms ($p = 0.051$) and firms with a larger cash balance ($p = 0.020$) are more likely to revalue financial investments. Leverage and growth seem to have no significant

Table 5. Endogeneity issues.

Panel A. Modelling the choice to revalue financial assets (probit regression)

Dependent variable	Constant	Independent variables $NIBREV_{it-1}$	$SIZE_{it}$	LEV_{it}	$GROWTH_{it}$	$CASH_{it}$
REV_D_{it}	−6.613	0.576	0.202	0.124	0.041	1.379
	(8.63)***	(1.95)*	(5.78)***	(0.73)	(1.49)	(2.32)**
N	4424					
Pseudo R^2	0.10					

Panel B. Dividend policy analysis for a matched sample (OLS)

Variables	(a)	(b)
Constant	0.008	0.011
	(3.31)***	(4.01)***
$NIBREV_{it}$	−0.022	−0.016
	(0.66)	(0.47)
$NIBREV_{it-1}$	0.040	0.036
	(1.47)	(1.35)
REV_{it}	−0.132	
	(2.05)**	
REV_D_{it}		−0.009
		(1.79)*
DIV_{it-1}	−0.400	−0.420
	(1.79)*	(1.95)*
N	152	152
Adj. R^2	0.04	0.05

Note: ***, ** and * indicate statistical significance at the 1, 5 and 10% levels (two-tailed), respectively. Data sample represents 4424 firm-year observations of Russian public companies listed on RTS, MMVB and/or RTS Board. $NIBREV_{it}$ ($NIBREV_{it-1}$) is net income before fair value adjustments in year t ($t-1$). REV_{it-1} is positive fair value adjustments due to revaluations of short-term and long-term financial assets in year $t-1$. REV_D_{it} is an indicator variable equalling one if a company revalued financial assets in year t and zero otherwise. DIV_{it-1} is lagged dividends. All variables except indicators are scaled by average total assets. $SIZE_{it}$ is the natural logarithm of total assets at the beginning of the year, while LEV_{it} is financial leverage defined as a ratio of total debt to total assets. $GROWTH_{it}$ is a percentage change in sales. $CASH_{it}$ is cash balance defined as cash scaled by average total assets. In Panel A, the z-statistics (in parentheses) are adjusted for misspecification of the underlying model and clustering at the firm level. Panel B reports results of the OLS regressions using scaled dividend changes (ΔDIV_{it}) as the dependent variable. Each revaluation observation is matched to at least one non-revaluation observation. Observations are matched based on fitted values of REV_D_{it} from a probit model using $NIBREV_{it-1}$, $SIZE_{it}$ and $CASH_{it}$ as independent variables. The t-statistics (in parentheses) are based on standard errors robust to both serial correlation and heteroscedasticity (Huber/White standard errors).

impact on the corporate accounting choice ($p = 0.463$ and 0.137, respectively). Model fit statistics indicate that the choice to revalue is systematic (Wald $\chi^2 = 46.27$, $p < 0.001$). This may lead to selection bias in the dividend regression, which uses fair value adjustments as an independent variable. It should be noted though that all the factors positively associated with the revaluation decision (i.e. profitability, size and cash balance) are also indicative of higher dividends. Therefore, selection bias (if any) may bias the coefficient on fair value adjustments upwards, while we find a negative coefficient.

To formally test whether selection bias affects our inferences, we use a matched sample of firms that are similar in terms of economic characteristics.[8] Each revaluation observation is matched to at least one non-revaluation observation using propensity score matching. Observations are matched based on fitted values of REV_D_{it} from a reduced version of Model (4) using only variables that were found to be statistically significant ($NIBREV_{it-1}$, $SIZE_{it}$ and

$CASH_{it}$). Results are qualitatively similar if we use the unrestricted model. The procedure results in a sample of 152 data points, where 70 firm-years report a positive fair value adjustment and the remaining sample represents firms that according to their characteristics cannot be distinguished from revaluers (i.e. a control group or 'counterfactual revaluers'). Our additional tests confirm that the matching procedure worked well as revaluers cannot be distinguished from a control group in terms of any previously used economic characteristics.[9]

Using this newly created matched sample, we replicate results for Model (2) and report this estimation in Panel B of Table 5.[10] The performance of the model deteriorates and the coefficient on earnings is now insignificant. The power of the tests decreases as we constrain the firms to have largely the same characteristics, which substantially reduces the variation in profitability and creates a very homogenous sample. Nevertheless, even in this homogenous sample the coefficient on fair value adjustments remains negative and significant at the conventional level. Therefore, our results reject H1 and indicate that in all likelihood fair value adjustments lead to lower dividend payouts.

4.6 *Why the negative relationship?*

We find that upward fair value revaluations are negatively related to dividend changes: firms with upward fair value adjustments increase their dividend significantly less than firms that do not record fair value adjustments. In this section, we propose two potential explanations for this firm behaviour.

A first explanation is that managers may use fair value gains opportunistically to justify a relatively lower level of dividends. Managers have a general preference for internal funds over sharing profits with outside investors, because this leaves more funds at their disposition (Pinkowitz *et al.* 2006). However, offering dividends that are below market expectations may lead to negative stock market reactions (Ghosh and Woolridge 1988, Brav *et al.* 2005) and may damage the firm's reputation vis-à-vis financial markets (Gomes 1996). To reduce reputational damage, managers may refer to unrealised and transitory fair value components as an explanation for a relatively lower dividend payout. This view is consistent with anecdotal evidence that Russian companies use fair value adjustments as an excuse for reducing dividends (Uspensky 2008). If opportunistic use of fair value accounting explains our result, the negative effect of fair value adjustments is likely to be concentrated in companies with weak corporate governance mechanisms. However, we do not have data on ownership concentration or board composition to test this assumption.

A second explanation is that upward fair value adjustments may be correlated with an unobservable managerial response to high growth.[11] While using dividend changes as the dependent variable in Model (2) controls for the effect of unobservables that are constant over time, variable effects remain unaccounted for. Managers may realise that the high sales growth[12] is unlikely to be persistent over a longer period due to a general mean reversion of growth or due to a reduction in consumer demand fuelled by cheap credit. In this case, maintaining a dividend payout based on the level of income before revaluations may increase a firm's riskiness, which may explain relatively lower dividends. Alternatively, high growth triggers expansion and investments.[13] As dividend decisions are made after considering investment needs (Brav *et al.* 2005), managers may pay relatively lower dividends to finance investments, leading to the observed negative relationship between dividends and unrealised fair value gains.

5. Conclusion

We contribute to the fair value debate by examining the link between positive fair value adjustments and changes in firms' dividend policy. Fair value components are expected to be volatile, and the usefulness of fair value accounting is likely to depend on stakeholders' ability to accurately assess the persistence of the adjustments and understand their implications for future earnings. We analyse the incremental relationship between fair value adjustments and dividends using the Lintner framework, which allows controlling for the level of core earnings and past dividend policy. We hypothesise that if fair value adjustments are transitory and investors efficiently process such information, fair value increments should have no distribution consequences. We evaluate this hypothesis using a large sample of companies from the Russian stock market. The Russian setting provides a unique opportunity to directly assess the effects of fair value adjustments, because accounting standard RAS 19/02 mandates reporting unrealised fair value adjustments in income and requires disclosing the amount in the footnotes.

Our univariate tests suggest that firms reporting positive fair value adjustments have a significantly lower increase in dividends than firms with no fair value adjustments. We further show that positive fair value adjustments are negatively related to dividend changes, after controlling for earnings before revaluations, lagged dividends and a number of control variables. Our results remain robust to a number of sensitivity checks, including using alternative scale variables and additional control variables. We also make careful attempts to control for a potentially endogenous nature of revaluations. Relying on propensity score matching, we replicate our results for a matched sample of firms that do not differ in terms of observable economic characteristics. We still find that the effect of positive fair value adjustments is negative and is statistically significant. We briefly discuss both opportunistic and rational managerial behaviour as possible explanations, but cannot evaluate which one holds based on our data.

We contribute to the literature on the economic consequences of fair value accounting by evaluating the impact of verifiable fair value estimates. Rather than having a procyclical impact on dividends, as suggested by regulators, positive fair value adjustments are associated with lower dividend payouts.

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Notes

1. Core (permanent, sustainable) earnings are defined as income after excluding items, which are transitory in nature. Collins *et al.* (1999) proxy for core earnings with income before extraordinary items, discontinued operations, cumulative effects of accounting changes and tax-adjusted special items. In our tests, we differentiate between earnings before revaluations – our raw estimate of core earnings – and fair value adjustments.
2. We exclude observations for which financial data or information on common dividends is missing and for which the primary outstanding security is not common stock. Furthermore, we drop financial companies and utilities, although keeping them in the sample does not change our inferences.
3. Worldscope covers mostly large firms and does not provide information on the amount of fair value adjustments reported in income.
4. Including these observations in the control (i.e. non-revaluation) sub-sample does not materially affect our results. Results of these tests, as well as of all other robustness checks, are available from the authors on request.
5. As in La Porta *et al.* (2000) we calculate the payout ratio after deleting firms with negative earnings before fair value adjustments. We have also replaced earnings with earnings changes in the denominator of this ratio and concentrated on the sample of firms reporting positive earnings changes.

Results of this analysis are qualitatively similar and suggest that revaluers do not fully adjust their dividends to a change in core earnings.

6. In addition to differencing the dependent variable and earnings (indirectly, via using lagged earnings) to control for unobservable characteristics, we also run the model using a difference in fair value adjustments, with similar results.
7. By construction, our measure of net share issues also includes dirty surplus adjustments.
8. We also test whether selection bias affects our inferences by fitting the two-step treatment effects model (see Maddala 1983, Leuz and Verrecchia 2000), where the treatment variable REV_D_{it} is conditioned on size, leverage, growth, profitability and cash. In the first step, the probit regression (4) is used to produce a selection hazard (inverse Mills ratio). In the second step, the dividend policy regression (model (e) in Panel B of Table 5) is augmented with the inverse Mills ratio. Testing the null hypothesis that the coefficient on Mills ratio is zero represents a test for sample selectivity. This test indicates that self-selection is not an issue ($z = 1.08, p = 0.281$). As the two-stage selection procedure is expected to produce inferior results (Francis and Lennox 2008), we chose to report results based on the propensity score matching.
9. The Wald χ^2 of Model (4) estimated for a matched sample equals 2.63 ($p = 0.757$). Furthermore, the t-tests show that revaluers cannot be distinguished from a control sample in terms of size, growth, leverage, (current and lagged) profitability, cash balance and lagged dividends.
10. Our inferences are based on standard errors robust to both serial correlation and heteroscedasticity (Huber/White standard errors). We do not cluster by firm, as most firms now have only one observation.
11. We thank an anonymous reviewer for suggesting this explanation.
12. The median annual growth in sales was 18% during our sample period (see Table 1).
13. Aggregate investments have substantially increased in each year during our sample period. Based on data of the Russian Federal State Statistic Service we estimate that the average growth in investments in fixed assets was 28% during our sample period.

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The fragile returns to investor relations: evidence from a period of declining market confidence

KENNETH PEASNELL, SAYJDA TALIB* and STEVEN YOUNG

Department of Accounting and Finance, Management School, Lancaster University, Lancaster, LA1 4YX, UK

This paper assesses the capital market effects of investor relations activities during a period of high-profile corporate scandals. We find no support for the prediction that an established reputation for effective investor relations helped shield US firms from a perceived decline in management credibility and financial reporting integrity associated with Enron and related scandals. On the contrary, tests reveal that firms with an established reputation for superior investor relations activities fared worse on a series of market-related factors. Results suggest that distrust in corporate reporting practices spilled over to investor relations practices, and that best practice investor relations programmes developed during normal market conditions offered little protection from systemic declines in investor confidence arising from the corporate misdeeds of other firms.

Keywords: investor relations; financial reporting credibility; accounting scandals; market reaction

1. Introduction

The process of communication between companies and external audiences has evolved significantly. Amongst these changes, radical development in investor relations has been observed, such that the function has evolved into a full-time professional operation in many firms (Marston and Straker 2001, Marston 2008). High-profile accounting and corporate governance scandals such as Enron, coupled with the legal and regulatory responses to these scandals, raise important questions about the role played by corporate communications generally and investor relations in particular (Allen 2002, Argenti *et al.* 2005). Beginning with Enron, the wave of high-profile accounting and corporate governance scandals that engulfed US financial markets during 2001 and 2002 placed corporate credibility under the microscope and led to both a crisis in investor confidence and increased investor scepticism about capital market valuations (Allen

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*Corresponding author. Email: s.talib@lancaster.ac.uk

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2002, Bratton 2002, Asthana *et al.* 2008). Against this backdrop, we explore the role of investor relations in helping to maintain the trust and confidence of investors. Our empirical tests contrast a sample of 122 companies recognised for their superior investor relations practices by the US *Investor Relations Magazine* Awards (IRMA) with a matched control sample of non-IRMA firms.

Our tests seek to distinguish empirically between the following two competing views of investor relations. Proponents of investor relations argue that effective investor relations have a positive impact on firm share price because more informative, timely and accurate communication helps improve the reliability of investors' valuation models and build corporate reputation (Brennan and Tamarowski 2000, Metzker 2002, Bushee and Miller 2010, Jong *et al.* 2007, Agarwal *et al.* 2008). If this is the case then firms with high-quality investor relations are expected to have experienced a less pronounced decline in investor confidence between October 2001 and September 2002 (hereinafter referred to as the scandal period) relative to our control sample. The alternative view of investor relations is that such activities merely involve a sophisticated repackaging of available information and therefore have little impact on investor confidence (Farragher *et al.* 1994). Indeed, heightened market scepticism over the perceived lack of management credibility could have led cynical investors to view investor relations as little more than a corporate marketing device designed to exaggerate stocks' prospects and put a positive spin on reported performance. From this viewpoint, firms associated with active investor relations programmes may have fared little better (or even worse) during this scandal period relative to our control sample.

Empirical tests compare a series of market-related variables and outcomes for IRMA and non-IRMA firms during a window spanning the period October 2001 through September 2002. Our first set of tests examines the stock price reaction of IRMA and control firms to Enron-related news of financial reporting failures. The aim of these contagion tests is to assess how market participants viewed firms with active investor relations programmes relative to firms with less established communication records. Results provide no support for the prediction that an established reputation for effective investor relations helped shield firms from the systematic decline in investor confidence experienced during this period. On the contrary, results indicate that firms with active investor relations programmes suffered larger stock price falls relative to firms in the control sample. In our second set of tests we examine relative changes over the pre- to post-scandal period in a series of variables indentified by Bushee and Miller (2010) as being influenced positively by investor relations activity. The variables include press coverage, trading volume and analyst coverage. In so far as a reputation for high-quality investor relations serves to insulate firms against a general decline in investor sentiment, IRMA firms are expected to have experienced less negative shocks to these variables over the scandal period compared with the non-IRMA control sample. However, results of our differences-in-differences tests suggest that IRMA firms experienced a more pronounced decline in press coverage, trading volume and analyst coverage relative to their non-IRMA counterparts. Collectively, these results cast doubt on the positive role that effective investor relations is predicted to play in upholding trust and confidence of investors, at least during turbulent market conditions. Our findings also suggest that the reputation of the investor relations industry may have been tarnished during this period.

Our study contributes to the small body of research investigating the capital market effects of investor relations. Both Bushee and Miller (2010) and Agarwal *et al.* (2008) document capital market benefits arising from increased investor relations activities. On the other hand, Farragher *et al.* (1994) fail to find any significant relation between the quality of investor relations and the accuracy of analysts' forecasts. To the extent that investor relations departments strive to enhance communication in an effort to build trust between firms and the market, one might expect the role and effect of investor relations to be particularly important during a period of deteriorating market confidence in the credibility and integrity of corporate America. While prior research explores the role of investor relations under regular market conditions, ours is the first study to consider the costs and benefits of investor relations activities when the general standards of corporate honesty are called into question. On balance our results suggest that during periods of heightened market scepticism concerning accounting quality and management credibility, a reputation for superior investor relations performance provides no guarantee that a firm will be insulated from declines in investor confidence arising from the corporate misdeeds of other firms. In fact, there is some evidence that distrust in corporate reporting practices led to heightened scepticism about investor relations practices in general.

The remainder of the paper is organised as follows. The next section reviews the extant literature. Section 3 develops our research question. Section 4 describes the measure of investor relations quality and Section 5 provides details of our research design. Section 6 describes the sample selection process and presents descriptive statistics. Empirical results and additional robustness tests are presented in Section 7. Section 8 concludes.

2. Prior research

Theoretical support linking investor relations with improved valuation comes predominately from the disclosure literature. In Diamond and Verrecchia (1991), adverse selection costs of trading reduce stock liquidity, thereby depressing stock price. Effective investor relations in the form of superior disclosure is predicted to help reduce adverse selection problems, thereby improving stock liquidity and raising stock price.[1] Theory also suggests that investor relations can help boost stock prices when investors have limited awareness or incomplete information. In Merton (1987), risk-averse investors avoid stocks about which they know nothing. By improving investor awareness of a firm, the investor relations function can help broaden the investor base and hence increase stock price (through improved risk sharing).

Agarwal *et al.* (2008) examine the market value of investor relations activity using *Investor Relations Magazine* Investor Relations Awards nominees as a proxy for investor relations quality. Consistent with effective investor relations reducing risks associated with high information asymmetry, they document that firms in receipt of a nomination earn superior abnormal returns and enjoy increased stock liquidity during the post-award period. In related work, Bushee and Miller (2010) examine 210 small and mid-cap US firms that hired investor relations consultants to develop their communication strategy. Consistent with the predicted benefits of investor relations, significant increases in corporate disclosures, media coverage, analyst following and institutional ownership are detected following the decision to hire an investor relations professional. Their findings are consistent with Lang and Lundholm (1996), Francis *et al.* (1997), Bushee and Noe (2000) and Chang *et al.* (2008). Bushee and Miller (2010) also report statistically significant pricing gains (measured as a decrease in the book-to-price ratio) for firms hiring the services of an investor relations consultant. In an Australian context, Chang *et al.* (2008) use a web-based survey to rate firms' investor relations practices and find that firms engaging in continuous, high-quality disclosure benefit from lower information asymmetry and smaller information asymmetry shocks around earnings announcements.

Survey research conducted by Marston (2008) among the top 500 UK companies finds that although the creation of shareholder value is one of the most important issues discussed at investor relations meetings, investor relations professionals also highlight the importance of ensuring securities are fairly priced. Marston (2004) documents similar results among the top 500 European companies where she finds agreement amongst investor relations professionals that the activity helps reduce share price volatility, improve liquidity and lower the cost of capital. The survey also highlighted the importance investor relations professionals place on investor meetings that provide management with an opportunity to demonstrate the quality of the executive team and to receive feedback from analysts and investors. Argenti *et al.* (2005) conducted 50 interviews with prominent CEOs, CFOs and various investor relations professionals and found consensus that investor relations should be seen as an integral and valuable part of firms' corporate strategy.

Nevertheless, many market participants remain sceptical about the practical value of corporate investor relations programmes. In a survey of over 1000 members of the Association for Investment Management and Research (now the CFA Institute), only 31% of respondents considered investor relations to be a 'very or extremely important' source of information, while 62% thought the quality of information emanating from corporate investor relations departments was average to poor. One explanation for this unfavourable view is that investor relations officers have insufficient access to top management. As Rich Wyler (CFA Institute spokesman) points out, '[M]ost IR officers are middle-level managers, and the 28 percent who are corporate officers are frequently left out of the corporate information flow in a way that general counsel would never be' (Connelly 2005, p. 44). Further, as one analyst commented, '[A]lthough not universally true, most corporate investor relations programs are increasingly focusing on ... promoting only the positive aspects of the corporate story' (IRMA Report 2002, p. 11).

3. Research question and setting

Prior research suggests that investment in investor relations can generate positive returns for firms during non-crisis periods. We aim to extend existing research in this area by testing whether these returns are preserved when corporate credibility is called into question.[2] In particular, we seek evidence on the link between the perceived quality of firms' investor relations activities and market behaviour during a period of heightened investor scepticism over accounting quality and management credibility. Our decision to focus on a period of increased investor scepticism is motivated by Brennan and Tamarowski's conjecture (2000, p. 37) that the reputation benefits associated with an effective investor relations strategy are likely to be particularly pronounced during periods when corporate credibility is called into question.

Between October 2001 and September 2002, the financial reporting atmosphere in the USA was contaminated with suspicion in response to a series of accounting scandals. In addition to spectacular reporting failures at Enron, Global Crossing, Tyco and WorldCom, this period in US financial reporting history witnessed record numbers of firms restating previously published results following discovery of material reporting errors and irregularities (Gleason *et al.* 2008). Further, as Gleason *et al.* (2008) demonstrate, the costs associated with these accounting failures were not confined to scandal firms: loss of investor confidence in the integrity of financial reporting and in management credibility more generally was widespread. This window therefore provides an interesting experimental setting in which to assess the reputational impact of investor relations when confidence in the honesty of management is subject to close scrutiny.[3]

The precise impact of investor relations during our test period is difficult to predict *ex ante*. If the role of investor relations is to minimise investor risk by providing corporate information that is clear, understandable and credible, and if such information risks are not fully diversifiable then more effective investor relations can lower perceived risk (and ultimately firms' cost of capital). Investor relations proponents, therefore, suggest that a communication strategy based on timely, transparent and unbiased reporting helps build trust and maintain management credibility (Brennan and Tamarowski 2000, Bushee and Miller 2010). According to this view one would expect firms with a reputation for high-quality investor relations to have been viewed with less suspicion by market participants, resulting in superior market performance during our event period relative to firms with less effective investor relations programmes.

An alternative view is that the accounting scandals occurring during this period served to undermine the credibility of corporate communications activities generally, and investor relations practices in particular (Holmes Report 2002). Survey and anecdotal evidence provide some support for this view (IRMA Report 2002, 2003). For example, 27% (21%) of respondents to the 2003 (2002) IRMA survey indicated that they had formed a more negative view of investor relations during 2002 (2001). As one senior sell-side analyst commented, '[I] am tired of the shameless promotionalism [*sic*] and outright lies – investor disinformation is perhaps a more appropriate term than investor relations' (IRMA Report 2002, p. 11).[4] Under such conditions, cynical investors may be more inclined to view investor relations as a corporate marketing device designed to exaggerate stocks' prospects and put a positive spin on reported performance. Rather than being reassured during this period by the presence of a prominent investor relations programme, increasingly sceptical investors may have associated investor relations activities with excessive corporate spin. Accordingly, firms with high-profile investor relations activities may have suffered similar or even disproportionately greater reputation losses during 2001 and 2002 compared to firms with no track record of investor relations activity.

A third possibility is that investors' perceptions of corporate credibility are independent of investor relations activities, in which case the capital market costs imposed on firms during our test period will be unrelated to investor relations quality. In the absence of clear theoretical and practical guidance on this issue, the link between firms' investor relations activities and the market's assessment of managerial credibility is an empirical issue on which our paper seeks evidence.

4. Measuring investor relations quality

We measure investor relations quality using survey data obtained by the IRMA over the period 1996 through 2001. Beginning in 1996, the IRMA has published an annual report that seeks to 'track changes in the investor relations industry, assess investors' information needs, and draw attention to companies that have distinguished themselves through their investor relations performance' (IRMA Report 2002, p. 3). Each year's report presents results of an extensive survey of investors' perceptions of corporate investor relations practices. Further details of the IRMA reports are summarised in an Appendix.

Previous empirical studies of disclosure quality have typically relied on Association for Investment Management and Research (AIMR) surveys as a basis for scoring firms on their investor relations performance (e.g. Farragher *et al.* 1994, Lang and Lundholm 1996, Bushee and Noe 2000). However, the AIMR discontinued its disclosure rankings in 1997 after ranking fiscal year 1995. The IRMA data used in this study offers several advantages over the AIMR data.[5] First, the IRMA survey respondents are allowed an unrestricted choice of firms from which to select, whereas the AIMR data were tightly restricted to certain industries (as well as to larger firms within a chosen industry). Second, because the IRMA reports classify investor relations effectiveness within size categories, we are able to investigate perceived investor relations quality controlling for size effects. Finally, the IRMA survey polls the views of both investment professionals and retail investors. Given the growth in equity ownership by retail investors in the USA (Investment Company Institute and the Securities Industry Association 2005), effective communication with this group of shareholders is becoming an increasingly important component of firms' investor relations strategy that was overlooked by the AIMR data.

5. Research design

The failure of Enron provides a unique opportunity to investigate whether investor relations reputation affects capital market outcomes. Two complementary approaches are used to investigate the link between investor relations performance and the extent of the capital market costs imposed on US firms during 2001 and 2002. First, we test whether stock market contagion effects associated with news of financial reporting failures varied as a function of investor relations performance. Second, we test for abnormal changes over the pre- and post-scandal periods in a range of firm-level variables predicted to be associated with investor confidence. Both approaches employ a matched-sample design to control for factors that might otherwise be correlated with investor relations quality. Our control sample consists of firms that do not feature in the 1996–2001 IRMA research reports (referred to as non-IRMA firms). Details of both approaches are outlined below.

5.1 *Contagion tests*

5.1.1 *Univariate analysis*

As a preliminary step we test whether the stock price reaction to news of financial reporting scandals varied as a function of non-scandal firms' perceived investor relations quality, before attempting to control for extraneous factors.

Prior research on stock price contagion documents significant market reactions for non-announcing firms to news of accounting restatements (Xu *et al.* 2006, Gleason *et al.* 2008), bankruptcy filings (Lang and Stulz 1992, Ferris *et al.* 1997) and the Enron collapse (Callen and Morel 2003). If effective investor relations helps preserve management credibility in times of heightened market concerns about financial reporting quality then high-quality investor relations firms are expected to have suffered significantly less negative contagion effects around key event dates compared to less aggressive investor relations firms. Conversely, if the systemic decline in market confidence concerning financial reporting practices and management integrity also tainted investors' perceptions of corporate investor relations generally, then proactive investor relations firms may have experienced similar or even greater contagion effects as investors reassessed the implications of current and past disclosures for firm performance and value.

The period preceding enactment of the Sarbanes–Oxley Act (SOX) in 2002 provides a related setting in which to test the relation between investor relations quality and the capital market. SOX was introduced specifically to address problems associated with Enron and related scandals.[6] However, confidence fluctuated over whether SOX would be enacted, providing an opportunity to assess the faith market participants placed in investor relations (Jain and Rezaee 2006). More specifically, in so far as effective investor relations firms were already perceived to be delivering credible information to the market, lower quality investor relations firms are expected to have been penalised more heavily by the market in response to unfavourable events that decreased the Act's perceived probability of enactment.

Prior research documents a series of events associated with Enron and the development of SOX that resulted in systemic capital market effects. Our primary analysis focuses on eight key event dates in 2001 and 2002 that prior research identifies as having generated the largest market-wide effects.[7] Three-day event windows centred on each of these eight dates are constructed. Further details of our event dates and associated announcement windows are summarised in Table 1.

We examine the average stock price reaction of IRMA and matched (non-IRMA) firms to these eight events. Non-IRMA firms are matched on industry, size and book-to-market to be comparable with IRMA firms in terms of risk. (See Section 6 for further details of the matching procedure employed.) For each event window we compute the average abnormal return (*AAR*) as follows:[8]

$$AAR_i = \frac{1}{n}\sum_{j=1}^{n}\frac{1}{d_i}\sum_{t=1}^{d_i}(R^{I}_{jti} - R^{NI}_{jti}) \tag{1}$$

Table 1. Details of short window event dates.

Event	News date	Study	Detail	Event window
Event 1	8 November 2001	Chaney and Philipich (2002), Doogar *et al.* (2007)	Enron restates its financial statements for the previous five years and the SEC requested documents from Andersen.	7–11 November 2001
Event 2	12 December 2001	Chaney and Philipich (2002), Rauterkus and Song (2005), Doogar *et al.* (2007)	Andersen's CEO admits at a Congressional testimony Andersen made an error.	11–13 December 2001
Event 3	10 January 2002	Chaney and Philipich (2002), Doogar *et al.* (2007), Asthana *et al.* (2008)	Andersen notified the SEC, the Department of Justice and Congress that it had shredded Enron-related audit-working papers.	9–11 January 2002
Event 4	2–4 February 2002	Chaney and Philipich (2002), Rauterkus and Song (2005), Asthana *et al.* (2008)	Andersen announces creation of an independent oversight board, plus release of the Powers Report detailing extensive problems in the audit of Enron and reveals that the national office of Andersen was aware of these problems.	1–5 February 2002
Event 5	14 March 2002	Rauterkus and Song (2005), Krishnamurthy *et al.* (2006), Doogar *et al.* (2007)	US federal prosecutors charged Andersen with a single count of obstruction of justice.	13–15 March 2002
Event 6	20 June 2002	Jain and Rezaee (2006)	SEC proposed creation of a nine-member Public Company Accounting Oversight Board to oversee the accounting profession.	19–21 June 2002
Event 7	9 July 2002	Jain and Rezaee (2006), Zhang (2007), Li *et al.* (2008)	President's Wall Street speech: President Bush makes proposal for Securities Law Reform calling for new ethic of personal responsibility in the business community. Through 8–12 July 2002, Senate considers S. 2673. On 10 July the Senate passes amendment to strengthen criminal penalties.	8–10 July 2002
Event 8	19 July 2002	Jain and Rezaee (2006), Zhang (2007)	Uncertainties voiced in a Conference Committee meeting regarding the form, content and enactment of SOX.	18–22 July 2002

Notes:

a. The table presents the eight events we have identified from prior literature, related to the Enron and Andersen debacle and legislative events related to the eventual passage of the SOX Act, suggested to have the biggest market reaction.

b. Three-day event windows centred on each of the eight identified dates are constructed.

where n is the number of firms in the sample, t represents an event day, d_i is the number of days in event period i, R_{jti} is firm j's day t stock return in event period i, R^I represents returns for firms in the IRMA sample, and R^N are returns for firms in the non-IRMA sample. We also examine the aggregate average abnormal return (*TAAR*) computed across all eight events:[9]

$$TAAR = \frac{\sum_{i=1}^{8} AAR_i}{8}. \tag{2}$$

AAR and *TAAR* can be viewed as the pay-off from a hedge-return strategy that involves going long in IRMA firms and short in matched non-IRMA firms. If investor relations served to maintain firms' reputation during this period, the mean difference in raw returns between IRMA and non-IRMA firms over the event windows will be positive. Alternatively, differences will be negative if distrust in corporate reporting practices spilled over to firms with active investor relations programmes.

5.1.2 *Multivariate tests*

As a second step, we explore the cross-sectional relation between event-related stock returns and investor relations quality after controlling for other firm-level factors that might influence stock return reactions to these events. One such factor is auditor reputation. While the accounting scandals clearly reduced confidence in the auditing profession, it is possible that firms audited by Andersen were hit harder by the accounting scandals compared to firms audited by other firms (Callen and Morel 2003, Asthana *et al.* 2008). To control for this possibility, we include an indicator variable for Andersen clients. Other potential risk factors that might explain differences in returns include size, book-to-market, firm profitability, sales growth and leverage (Fama and French 1995, Bushee and Noe 2000). Finally, we also control for industry membership in case contagion effects were more pronounced in certain sectors. Accordingly, we estimate the following regression for each event i:

$$\begin{aligned} CR_{ij} = {} & \alpha_i + \beta_{1i} IR_j + \beta_{2i} AA_j + \beta_{3i} SIZE_j + \beta_{4i} BTM_j + \beta_{5i} ROA_j + \beta_{6i} SG_j + \beta_{7i} LEV_j \\ & + \beta_{8i} IND\_MANF_j + \beta_{9i} IND\_WHL_j + \beta_{10i} IND\_SERV_j + \varepsilon_{ij}. \end{aligned} \tag{3}$$

The dependent variable (*CR*) is firm j's three-day cumulative return (centred on the announcement day) for event i: $CR_{ij} = \sum_{t=-1}^{t=1} R_{jti}$. Definitions for explanatory variables are as follows: *IR* is an indicator variable taking the value of one if the firm is from the IRMA sample and zero otherwise; *AA* is an indicator variable taking the value of one if the firm is audited by Andersen and zero otherwise; *SIZE* is the natural logarithm of the market value of equity (Lang and Lundholm 1996); *BTM* is the book value to price ratio (Bushee and Noe 2000); *ROA* represents operating income after depreciation (Compustat DATA178) scaled by total assets; *SG* is sales growth (Compustat DATA12) (Bushee and Noe 2000); *LEV* is leverage, defined as the ratio of long-term debt to total assets (Bushee and Noe 2000), and *IND_MANF*, *IND_WHL* and *IND_SERV* are indicator variables representing the Manufacturing, Wholesale and Services industries, respectively.[10] All explanatory variables are measured immediately prior to the start of our event period. Although we use a matched pairs design in the univariate analysis, Equation (3) is estimated on a pooled basis. Failure to control for the matched pairs structure of the data is expected to reduce the power of our multivariate tests.

One limitation of estimating Equation (3) by OLS is the possibility of producing biased standard errors for coefficient estimates when there is cross-sectional correlation and heteroscedasticity in the residuals. Cross-sectional correlation is particularly likely in our setting since our eight news events were expected to impact all firms in the market at the same time. To address these problems we adopt the estimation procedure proposed by Sefcik and Thompson (1986) which uses portfolios constructed by weighting observations to account for cross-sectional correlation and heteroscedasticity. The method involves constructing P portfolios, where P is the number of intercepts and explanatory variables in Equation (3). Returns for each portfolio on day t are computed as

$$R_t^p = W_p^I R_t \tag{4}$$

where R_t^p is the return for portfolio p on day t, R_t is an $N \times 1$ vector of individual firms' returns on day t (N is the number of firms), and W_p^I is a $1 \times N$ vector of weights for portfolio p. The vector weights are from the following matrix:

$$W = \begin{bmatrix} W_1^I \\ \vdots \\ W_p^I \end{bmatrix} = (X^I(X))^{-1}X^I \tag{5}$$

where X is an $N \times P$ matrix. Each of the rows in matrix W is a unique set of portfolio weights corresponding to an explanatory variable that are then used in Equation (4) to compute portfolio returns. The resulting portfolio daily returns are then regressed on the market return and event variables. Sefcik and Thompson (1986) show that with appropriate selection of portfolio weights, estimates of portfolio abnormal returns are identical to coefficient estimates from cross-sectional regressions. The weighting procedure accounts for potential collinearities among firm characteristics and provides an opportunity to evaluate the relative importance of different firm characteristics in explaining the market reaction to our eight news events.[11]

5.2 *Investment viability and analysts' earnings forecasts tests*

Prior research documents a range of market-related benefits associated with informative disclosure practices including greater press and analyst coverage, more accurate analyst earnings forecasts, lower book-to-price ratios, less dispersion among individual analyst forecasts, lower volatility in forecast revisions and lower volatility in returns (Bushee and Noe 2000, Bushee and Miller 2010). Higher trading volume, press coverage and analyst following are indicative of greater interest in the stock. Improved accuracy of analyst forecasts, lower forecast dispersion and lower return volatility are evidence that analysts are better able to predict and agree on expected earnings performance.[12]

Analysing the association between changes in these variables and corporate investor relations performance provides an alternative means of evaluating the costs and benefits of investor relations activity. In particular, if investor relations served to maintain firms' reputation during the period in question, changes in trading volume, analyst coverage and press coverage should be positively associated with investor relations quality, while changes in forecast dispersion and forecast error, and book-to-price and earnings-to-price should be negatively associated with investor relations quality. Alternatively, no difference (a reversal) in these associations would indicate that investor relations firms fared no better (worse) relative to control firms.

To compute the change in investment viability attributes we measure and compare variables over the pre-scandal (September 2000–August 2001) and post-scandal (September 2002–August

2003) periods. The pre-scandal period end date is 31 August 2001, one month before the start of the first major accounting scandal (Enron). By September 2002, the start of the post-scandal period, the majority of the accounting scandals had come to light. We proxy firms' press coverage by counting the number of articles related to each firm in the *Wall Street Journal* (WSJ) during the pre- and post-scandal periods. The company search is restricted to the citation and abstract to increase the chances of finding articles related to a particular firm.[13] Trading activity is measured as the natural logarithm of annual share volume. We use annual earnings forecast properties for the first year-end preceding 31 August 2000 and 31 August 2003 to compute our analyst forecast variables. We take the number of analysts issuing an annual earnings forecast in the last month prior to the earnings announcement for both years as a proxy for analyst following. We assume zero analyst following for 4 firms in the IRMA sample and 15 firms in the non-IRMA sample that are absent from I/B/E/S. Forecast dispersion for both years is measured as the standard deviation of earnings per share (eps) estimates in the last month prior to the earnings announcement, scaled by the stock price on the last day of the fiscal year-end. Forecast accuracy is measured as the absolute difference between actual eps and median forecasted eps, deflated by stock price on the last day of the fiscal year-end for both years. The last consensus forecast for each firm prior to the earnings announcement is used to compute forecast error.[14] We deflate forecast error by the year-end stock price to address scale problems (Lang and Lundholm 1996).

6. Sample, data and descriptive statistics

We use the 1996–2001 IRMA reports to construct our sample of firms deemed to have operated effective investor relations programmes. Firms achieving either winner or honourable mention status in a given year are classified as having effective investor relations programmes. We omit financial firms (SIC codes 6000–6999) and firms operating in other regulated industries (SIC codes 4000–4999) as the role of investor relations may differ in these industries. Finally, because the focus of our analysis relates to the period October 2001 through September 2002, we retain only those firms with price data available on CRSP for this entire period. Applying these sampling criteria yields a final sample of 122 firms deemed to have operated an effective investor relations programme in at least one year between 1995 and 2000.[15] Details of the sample selection process are presented in Table 2.

Results reveal considerable industry clustering: the majority of observations in our sample are drawn from the Manufacturing sector (59%), followed by Services (25%), Wholesale and Retail (13%), and Mining and Construction (3%). Reasons for this sample clustering are unclear and beyond the scope of our analysis. Since in subsequent analyses sample firms are matched with an industry control group, we do not expect such concentration to bias our tests to any significant degree. We are nevertheless mindful that industry clustering may reduce the generalisability of our findings to sectors not included in our final sample.

Our control sample of firms that did not feature in the IRMA reports is matched with IRMA firms on the basis of industry, size and book-to-market ratio using the following sequential sort procedure. For each firm-year in the IRMA sample, we identify all non-IRMA sample firms on the CRSP database in the same one-digit SIC category that (a) received no mention of their investor relations practices in any of the 1996–2001 IRMA reports, (b) had at least two years of price data prior to the IRMA award-year, and (c) had price data for our event period. The first criterion helps maximise potential differences in investor relations quality across IRMA and control firm samples. The second criterion guarantees that control firms existed at the time the IRMA award was made and as such were part of the universe of active stocks from which survey respondents made their selection. The third criterion ensures that control firms were active during our test period. Industry-matched non-IRMA firms are then ranked by market capitalisation measured

Table 2. Sample selection.

Total number of firms mentioned in 1996–2003 IRMA reports		947
Less:		
Firms missing from CRSP (including Asia-Pacific IR in the US, European IR in the US, Latin America IR in the US categories)	155	
Firms appearing in the 2002 or 2003 reports	217	
Book value of shareholders' funds not available on Compustat	5	
Firms not achieving 'Winner' or 'Honourable Mention' status	368	
Firms in the Most Improved IR, M&A Investor Relations, IR during Friendly Takeover, IR during Contested Takeover and IR for an IPO categories	37	
Financial firms (SIC groups 6000–6999)	21	
Firms operating in other regulated industries (SIC groups 4000–4999)	18	
Market data not available for the event period (August 2001–September 2002)	4	
		(825)
Final sample		122

Notes:

a. The IRMA reports include three distinct categories within each award, that is, Winners, Honourable Mentions and Mentions. We exclude firms from the sample that only got a mention to increase the power of the tests.

b. The same firm can appear in more than one award category in each year and can appear in more than one award year. Our sample consists of the number of unique firms from the period 1996–2001.

c. Some of the award categories were 'closed' as they have a restricted potential winners sample due to its nature. These were Most Improved IR, M&A Investor Relations, IR during Friendly Takeover, IR during Contested Takeover and IR for an IPO. Firms in these categories were excluded from the sample due to their contentious nature.

d. We omit financial firms (SIC codes 6000–6999) and firms operating in other regulated industries (SIC codes 4000–4999) because the role of investor relations practices in these industries is likely to differ significantly from the investor relations activities of firms operating in unregulated industries.

at 31 August 2001 and assigned to one of 20 equal-sized portfolios. Finally, the control firm in the same industry-market capitalisation portfolio as our IRMA firm that minimises the difference in book-to-market ratios was selected.[16]

Table 3 presents mean and median characteristics for IRMA and non-IRMA firms immediately prior to the start of our event period.

This comparison provides evidence on company attributes associated with our proxy for investor relations quality. We examine three size measures: log of market value of equity (*SIZE*), total assets (*ASSETS*) and sales (*SALES*).[17] In addition, we report two measures of firm performance: one-year compounded monthly returns (*RET*) and return on assets (*ROA*). We report two measures of growth: the earnings-to-price ratio (*EP*) and book-to-market (*BM*). We also examine leverage (*LEV*), press coverage (*PRESS*) and trading volume (*VOL*). Finally, we compute analyst forecast characteristics including analyst following (*ANAL*), forecast error (*ERROR*) and forecast dispersion (*DISP*).

Material differences between IRMA and non-IRMA firms are apparent for a number of variables examined. Means and median values of *SIZE*, *ASSETS* and *SALES* are significantly larger for IRMA firms compared to their respective control firms, suggesting that our matching procedure did not succeed in eliminating all size differences. (Multivariate tests reported in Table 6 control explicitly for these residual size effects.) IRMA firms also perform worse than their non-IRMA counterparts during the pre-event period in terms of both accounting (*ROA*) and market-based (*RET*) metrics. Consistent with results documented by Bushee and Miller (2010), IRMA firms are associated with significantly higher press coverage and analyst following. IRMA firms also display significantly higher trading activity during the pre-event period. Contrary to Lang and Lundholm (1996) but consistent with Farragher *et al.* (1994), we find no significant difference in forecast error properties between the two samples. Unlike Farragher *et al.* (1994), however, we also fail to find any significant difference in forecast dispersion.

Table 3. Summary statistics of differences between IRMA and non-IRMA samples.

		IRMA sample		Control sample		p-value for difference	
Variable	N	Mean	Median	Mean	Median	Means	Medians
SIZE	122	15.631	15.682	15.221	15.565	0.001	0.001
RET	122	−0.176	−0.100	0.134	0.185	0.001	0.001
BM	121	0.301	0.286	0.316	0.283	0.913	0.467
EP	121	−0.097	0.040	−0.022	0.043	0.357	0.586
PRESS	122	17.795	8.000	5.689	2.000	0.001	0.001
VOL	122	15.443	15.468	14.449	14.556	0.001	0.001
ASSETS	121	14799	4411	7588	2932	0.074	0.045
LEV	121	0.156	0.111	0.190	0.163	0.150	0.064
SALES	121	12451	4198	7440	2565	0.033	0.145
ROA	121	0.097	0.110	0.101	0.131	0.844	0.856
ERROR_Mean	98	0.002	0.000	0.004	0.001	0.467	0.679
ERROR_Med	98	0.002	0.000	0.004	0.001	0.404	0.146
DISP	102	0.002	0.001	0.003	0.000	0.768	0.691
ANAL	122	16.828	17.000	10.959	12.000	0.001	0.001

Note:

a. This table provides means and medians for firm characteristics before the event period. The IRMA sample refers to the sample of effective investor relations firms and the control column refers to the control sample matched on industry, size and *BM*. The last two columns test for differences in the mean and median between samples. *SIZE* is the log of the market value of equity, *RET* is the one-year monthly compounded stock returns, *BM* is the book value–price ratio, *EP* is the earnings–price ratio, *PRESS* is number of articles mentioning the company in the *Wall Street Journal*, *VOL* is the log of annual share volume, *ANAL* is the number of analysts providing an annual earnings forecast, *ERROR* is the absolute value of the analyst forecast error, deflated by the price at fiscal year-end, *DISP* is the standard deviation of forecasts deflated by stock price, *ASSETS* measures Total Assets (Compustat DATA6), *LEV* measures leverage by Long-Term Debt (Compustat DATA9) scaled by Total Assets, *SALES* represents Sales (Compustat DATA12) and *ROA* represents Operating Income After Depreciation (Compustat DATA178) scaled by Total Assets.

Although analyst forecast properties are similar for both samples, results for our other investment viability variables indicate that our measure of investor relations quality is indeed capturing the underlying construct.

7. Results

7.1 *Contagion tests*

7.1.1 *Univariate results*

Table 4 presents descriptive statistics and results of the raw return analysis for the eight event windows.

Positive differences in the average returns between IRMA and matching non-IRMA firms indicate that IRMA firms' returns are on average higher than their non-IRMA counterparts over the event window. Only for Event 1 is the average raw return difference found to be positive and significant at conventional test levels. Contrary to the prediction that effective investor relations helped insulate firms from the negative contagion effects triggered by Enron and associated scandals, mean and median return differences are negative for six of the eight event windows, three of which are significant using a two-tailed parametric t-test (Events 2, 4 and 6) and four of which are significant based on two-tailed non-parametric tests (Events 2, 4, 5 and 6). Moreover, these negative three-day returns appear to be economically significant. For example, −0.009 on the *IR* variable for Event 6 equates to a loss of 66% on a compound annual basis.

Table 4. Testing the difference in average returns between matched IRMA and non-IRMA firms.

							Probability values		
Event	N	Mean	Std dev.	Min	Median	Max	t-test	Sign	Wilcoxon
Event 1	122	0.005	0.047	−0.254	0.003	0.229	0.043	0.075	0.042
Event 2	122	−0.007	0.050	−0.401	−0.003	0.151	0.009	0.158	0.045
Event 3	122	−0.001	0.035	−0.125	−0.002	0.222	0.564	0.321	0.286
Event 4	122	−0.005	0.048	−0.299	−0.004	0.229	0.035	0.005	0.001
Event 5	122	−0.003	0.040	−0.328	−0.004	0.166	0.144	0.040	0.056
Event 6	122	−0.009	0.045	−0.286	−0.005	0.170	0.000	0.001	0.000
Event 7	122	0.000	0.054	−0.210	0.002	0.524	0.904	0.562	0.883
Event 8	122	−0.002	0.051	−0.243	−0.001	0.279	0.379	0.712	0.744
All Events	122	−0.003	0.047	−0.401	−0.002	0.524	0.001	0.002	0.000

Notes:

a. The first column indicates the event window and the third column shows the mean difference in the raw returns between the matched IRMA and non-IRMA firms, over the event window and across the whole sample. We use the following equation:

$$AAR_i = \frac{1}{n}\sum_{j=1}^{n}\left(\frac{1}{d_i}\sum_{t=1}^{d_i} R^I_{jti} - R^N_{jti}\right).$$

b. Refer to Table 1 for definition of events.

Aggregating across all event days also reveals statistically significant negative return differences between IRMA and their non-IMRA matching counterparts. Similar conclusions are apparent for the (untabulated) difference in cumulative raw returns computed over the eight short window event periods. Collectively, findings reported in Table 4 provide little support for the prediction that firms with effective investor relations fared better during this period. Rather, results reveal that firms recognised as having effective investor relations actually fared worse when the market received negative news regarding financial reporting credibility.

Our findings are consistent with the wave of corporate scandals having tarnished the reputation of the investor relations industry. While superior investor relations firms traded at a premium prior to the event period as a consequence of their communication activities, news of systemic accounting failures caused disproportionately large downgrades for such firms due to concerns over the credibility of management generally and corporate communications practices in particular. From this perspective, while superior investor relations fails to provide a truly reliable signal of corporate credibility and integrity, it nevertheless has the power to influence market valuation. During non-crisis periods, effective investor relations may serve to boost investor confidence in management and corporate performance, causing such firms to trade at a premium relative to their peers with less well-developed communication practices. However, when corporate credibility and financial reporting integrity are called into question, we conjecture that such firms have proportionately more to lose as investors systematically revise downwards their perceptions of management quality and financial probity. Paradoxically, therefore, market confidence in firms with well-developed communication practices is dented to a larger degree by the accounting scandals than for firms with little or no track record in investor relations activities. A competing explanation for the return differences reported in Table 4 is due to unmodelled risk differences between treatment and control firms. We explore this issue further in our multivariate tests.

The positive average return difference documented for Event 1 is worthy of further discussion. As this was the earliest event in the test window, we conjecture that the reputation of investor

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Table 5. Cumulative abnormal returns over the long-run event window (October 2001–September 2002).

	IRMA firms		Non-IRMA firms		Portfolio difference		Matched firm difference	
12-month CAR	Mean (median)	N	Mean (median)	N	t-test (p-value)	Wilcoxon Z score (p-value)	t-test (p-value)	Wilcoxon Z score (p-value)
Oct 2001–Sept 2002	0.049	122	0.123***	122	1.16	0.786	−1.170	−497.5
	(0.113)**	122	(0.175)***	122	(0.246)	(0.432)	(0.244)	(0.205)

Notes:

a. This table shows the market-adjusted cumulative abnormal return for the sample of IRMA firms and non-IRMA firms over the 12-month (October 2001–September 2002) event window using monthly return data. Statistical tests were performed for differences between the IRMA and non-IRMA sample means and between the matched differences between the 122 IRMA and non-IRMA firms. We use the CRSP value-weighted index returns as market index returns.

b. Significant differences from zero at 10, 5 and 1% are indicated by *, ** and ***, respectively.

relations activities remained intact at this point and as a consequence this is the only event window where IRMA firms experienced fewer market costs relative to their non-IRMA counterparts. Viewed in this way, our findings serve to reinforce the potential benefits of effective investor relations during normal market conditions.

In addition to examining whether there was a differential stock price effect for the two samples over the short news event windows, we also test for differential price effects over the whole 12-month period between October 2001 and September 2002. Market-adjusted cumulative monthly returns for both samples are presented in Table 5.[18]

For both samples, after adjusting for the cumulated monthly CRSP value-weighted market return, cumulative abnormal returns are significantly positive. Hence both samples outperformed the market over the year. However, tests fail to reveal any significant statistical difference between the two samples. Accordingly, these null results again fail to support the view that effective investor relations helped insulate firms from problems during this period.

7.1.2 *Multivariate results*

Table 6 reports results for multivariate tests designed to control for other potential confounding factors.

Findings are consistent with univariate results in so far as they provide no evidence to support claims that an effective investor relations programme protected firms against contagion associated with corporate financial scandals. In particular, the estimated coefficient on the investor relations indicator variable is either indistinguishable from zero (Events 1–5 and 7–8) or significantly negative (Event 6) for the eight event windows examined in Table 6. These findings reveal that IRMA firms were no better insulated than non-IRMA firms from market downgrades resulting from investor concerns over the integrity of management and financial reporting practices. Indeed, although less pronounced than our univariate findings, there is evidence that firms with award-winning investor relations programmes were penalised more heavily by the market during our event windows compared to non-IRMA control firms: six of the coefficient estimates on *IR* are negative, with Event 6 being significant at the 5% level. At best, therefore, our findings suggest that high-quality investor relations practices established during non-crisis periods provide no guarantee that a firm will be insulated from declines in investor confidence arising from the corporate misdeeds of other firms.

Results for the control variables included in Equation (3) are generally insignificant. Only coefficient estimates on the indicator variable for Andersen clients (Event 7), sales growth

Table 6. Multivariate analysis.

Variables	10 Nov Event 1 coefficient (p-value)	12 Dec Event 2 coefficient (p-value)	10 Jan Event 3 coefficient (p-value)	4 Feb Event 4 coefficient (p-value)	14 Mar Event 5 coefficient (p-value)	20 Jun Event 6 coefficient (p-value)	9 Jul Event 7 coefficient (p-value)	19 Jul Event 8 coefficient (p-value)
Intercept	0.011	0.017	0.005	0.004	0.004	0.003	−0.028	−0.023
	(0.670)	(0.505)	(0.842)	(0.879)	(0.883)	(0.892)	(0.265)	(0.357)
IR	0.005	−0.006	−0.002	−0.005	−0.003	−0.009	0.001	−0.002
	(0.196)	(0.149)	(0.714)	(0.269)	(0.404)	(0.035)	(0.843)	(0.633)
DAA	0.004	0.002	0.001	0.000	0.002	0.001	0.008	−0.003
	(0.265)	(0.550)	(0.728)	(0.937)	(0.632)	(0.850)	(0.035)	(0.447)
SIZE	−0.001	−0.001	−0.001	0.000	0.000	−0.001	0.000	−0.001
	(0.692)	(0.389)	(0.705)	(0.797)	(0.861)	(0.671)	(0.883)	(0.440)
BTM	−0.001	−0.001	−0.002	0.001	−0.001	0.001	0.001	−0.001
	(0.441)	(0.458)	(0.244)	(0.509)	(0.578)	(0.645)	(0.627)	(0.529)
ROA	−0.003	−0.021	0.008	−0.012	−0.007	−0.013	0.000	−0.001
	(0.828)	(0.130)	(0.574)	(0.385)	(0.594)	(0.331)	(0.994)	(0.925)
SG	0.002	−0.002	−0.001	−0.003	−0.001	−0.004	−0.002	−0.002
	(0.114)	(0.150)	(0.524)	(0.043)	(0.465)	(0.007)	(0.263)	(0.283)
LEV	0.009	0.002	−0.012	−0.004	0.006	0.020	0.025	−0.001
	(0.501)	(0.848)	(0.351)	(0.777)	(0.620)	(0.112)	(0.050)	(0.968)
IND_MANF	−0.010	0.001	0.000	−0.004	−0.005	−0.008	0.003	0.015
	(0.328)	(0.895)	(0.994)	(0.732)	(0.662)	(0.452)	(0.771)	(0.156)
IND_WHL	−0.011	0.004	−0.008	−0.005	−0.007	−0.001	0.002	0.018
	(0.367)	(0.763)	(0.498)	(0.689)	(0.547)	(0.944)	(0.884)	(0.121)
IND_SERV	0.001	0.005	0.005	−0.014	−0.015	−0.012	0.012	0.017
	(0.894)	(0.679)	(0.655)	(0.206)	(0.165)	(0.270)	(0.263)	(0.124)

Notes:

a. This table presents coefficient estimates and p-values (in parentheses) for the regression models. The cumulative return over each event window acts as our dependent variable and this is regressed on several control variables. *IR* is the dummy indicator for when the firm is from the IRMA sample or not. *DAA* is a dummy indicator for when the firm is audited by Andersen or not. *SIZE* is the log of the market value of equity and *BTM* is the book value–price ratio. *ROA* represents Operating Income after Depreciation (Compustat DATA178) scaled by Total Assets and *SG* is Sales Growth (Compustat DATA12). *LEV* is leverage, defined as the ratio of Long-Term Debt to Total Assets. Three dummies identifying the industry the firm belongs to: *IND_MANF*, *IND_WHL* and *IND_SERV* represent the Manufacturing, Wholesale and Services industry, respectively.

b. Estimation based on the Sefcik and Thompson method (1986), which uses portfolios constructed by weighting observations to account for cross-sectional correlation and heteroscedasticity.

(Events 4 and 6) and leverage (Event 7) are significantly different from zero at conventional levels. Findings suggest that our inability to detect positive pricing effects for investor relations activities is not due to the omission of potentially confounding factors. The results also indicate that our matching procedure has been relatively successful in identifying non-IRMA firms with similar risk profiles.

7.2 *Investment viability and analysts' earnings forecasts tests*

Table 7 reports mean and median changes in company characteristics between pre-scandal (September 2000–August 2001) and post-scandal (September 2002–August 2003) periods.

If investor relations served to maintain firms' reputation during this period, changes in trading volume, analyst following and press coverage should be positively associated with investor relations quality, whereas changes in forecast dispersion, forecast error, book-to-price and earnings-to-price ratios should be negatively associated with investor relations quality.

Table 7. Difference-in-difference tests.

		ΔIRMA sample		Δcontrol sample		p-value for difference	
Variable		Mean	Median	Mean	Median	Means	Medians
SIZE	112	−0.047	−0.012	−0.079	0.019	0.636	0.637
RET	119	0.553	0.318	0.197	0.005	0.028	0.001
BM	112	−0.096	0.019	0.057	0.020	0.071	0.395
EP	112	−0.008	−0.006	−0.015	0.004	0.852	0.925
PRESS	122	−4.738	−2.000	0.057	−1.000	0.009	0.090
VOL	119	0.010	0.090	0.249	0.237	0.001	0.001
ASSETS	115	2455.247	187.035	744.099	159.527	0.241	0.040
LEV	115	0.022	0.000	0.003	0.000	0.233	0.573
SALES	115	−134.969	16.954	−258.170	52.828	0.827	0.351
ROA	115	−0.147	−0.034	−0.011	0.003	0.197	0.062
ERROR_Mean	94	0.009	0.000	−0.001	0.000	0.252	1.000
ERROR_Med	94	0.010	0.000	−0.002	0.000	0.215	0.606
DISP	94	−0.001	0.000	−0.002	0.000	0.438	0.353
ANAL	122	−1.754	−2.000	−0.066	0.000	0.016	0.004

Note:

a. This table provides means and medians for changes in firm characteristics during the period of market negativity. The IRMA sample refers to the sample of effective investor relations firms and the control column refers to the control sample matched on industry, size and *BM*. The last two columns test for differences in the mean and median between samples. *SIZE* is the log of the market value of equity, *RET* is the one-year monthly compounded stock returns, *BM* is the book value–price ratio, *EP* is the earnings–price ratio, *PRESS* is number of articles mentioning the company in the *Wall Street Journal*, *VOL* is the log of annual share volume, *ANAL* is the number of analysts providing an annual earnings forecast, *ERROR_Mean* is the absolute value of the analyst forecast error using the mean consensus forecasts, deflated by the price at fiscal year-end, *ERROR_Med* is the absolute value of the analyst forecast error using the median consensus forecasts, deflated by the price at fiscal year end, *DISP* is the standard deviation of forecasts deflated by stock price, *ASSETS* measures Total Assets (Compustat DATA6), *LEV* measures leverage by Long-Term Debt (Compustat DATA9) scaled by Total Assets, *SALES* represents Sales (Compustat DATA12) and *ROA* represents Operating Income After Depreciation (Compustat DATA178) scaled by Total Assets.

Although both samples experience a median fall in press coverage (*PRESS*) over the period, the fall experienced by the IRMA sample firms is twice as large as that of the control sample. Similarly, IRMA firms experience a median drop in analyst following of two analysts (*ANAL*) whereas the median loss of coverage was zero for the control sample. Furthermore, although both samples experience a small increase in trading activity (*VOL*) over the period, the increase for IRMA firms is less than half that of the control sample. These results do not support the view that investor relations insulated firms from the negative market shocks. There again exists some evidence that distrust in corporate reporting practices spilled over to investor relations practices.

Lang and Lundholm (1993, 1996), Farragher *et al.* (1994) and Adrem (1999) report lower dispersion among analyst forecasts for firms with more informative disclosures. We fail to find a significant difference in the change in dispersion between the two samples over this period. Similarly, we find no difference in the change in forecast error for both samples. Again, these results do not support the view that investor relations firms were insulated from the effects of the credibility crisis.

Overall, the picture presented by these results is somewhat mixed. There is some evidence that IRMA firms were viewed more negatively by analysts as a result of the scandals. Other evidence suggests they were treated similarly to control firms. Notably, however, there is no evidence suggesting that analysts exhibited more confidence in (and interest towards) IRMA firms relative to their non-IRMA counterparts during the scandal period. In sum, investors appear to have been unimpressed by previously established investor relations credentials.

7.3 *Robustness tests*

We conduct a number of untabulated sensitivity checks on the robustness of results reported above. In the first set of tests, we use an alternative method of selecting event dates for our study. In the second set of tests, we expand the sample to include other firms recognised in the IRMA reports.

7.3.1 *Events related to other major scandals in 2002*

Instead of relying on event dates identified in prior studies, we construct a sample of critical news event dates relating to the Enron, Global Crossing, Tyco and WorldCom scandals from a keyword search of the WSJ during calendar years 2001 and 2002. We focus on these large scandals to restrict our attention to cases with a potential market-wide effect. All WSJ articles relating to these four scandals were examined. After removing confirmatory and duplicate stories, 119 articles remain. Because our interest lies in examining the contagion effects relating to these events, we exclude articles where the contagion effect is expected to be negligible.[19] This procedure results in a final sample of 75 event dates running from 16 October 2001 to 27 September 2002. The first date in our sample is the announcement by Enron of a third quarter loss of $618 million owing to a $1 billion one-off charge, together with a $1.2 billion reduction in shareholders' equity. The last event date is the announcement that WorldCom's former controller had pleaded guilty to three counts of conspiracy, securities fraud and making false statements to the Securities and Exchange Commission. Three-day event windows centred on each of the 75 WSJ dates are constructed. Where event windows overlap, they are grouped together to form a single extended window, resulting in 30 unique event windows ranging from 3 to 10 days' duration.

Untabulated results reveal that on average across all event days, firms recognised as having effective investor relations suffered larger price falls when the market received negative news regarding accounting scandals. On closer examination, eight event windows have a significantly negative average raw return difference between the IRMA and control samples. In comparison, there are only two event windows where a significant positive average raw return difference is evident. Findings indicate that more often than not, differences in average returns between IRMA and control firms are either non-significant at conventional significance levels or significantly negative. Hence, these results provide no evidence that good investor relations firms were insulated to a greater degree from the credibility crisis.

7.3.2 *Sample refinements*

The final sample of 122 firms was obtained after a rigorous refinement of the IRMA data. However, additional tests were conducted to ensure that results are robust to these refinements. In particular, we reinstated all firms in receipt of at least one positive mention in the IRMA reports, resulting in a larger sample of 321 firms. The number of event windows with a negative and statistically significant difference in average raw return between IRMA and matched control firms is reduced from the four events reported in Table 4 to two events (Events 2 and 6) for the eight events summarised in Table 1. However, aggregating across all event days still yields a significant negative difference in the average raw return between the case and matched control sample. Furthermore, Event 1 continues to be the only window where we observe a significant positive average raw return difference. Although less pronounced, these findings are broadly consistent with our main results.

8. Conclusion

This paper provides the first investigation into the capital market consequences of investor relations activities during a period of general distrust over corporate credibility. Although previous studies shed light on the specific activities undertaken by the investor relations process and the associated benefits (Marston 2008), no study to date has empirically tested the capital market implications of investor relations when corporate credibility is called into question. Prior literature suggests that investor relations plays an important role in reducing information risk leading to several capital market benefits but these results are confined to non-crisis trading periods (Bushee and Miller 2010, Agarwal *et al.* 2008). We examine whether investor relations helps uphold investor confidence during difficult market conditions caused by a wave of high-profile accounting scandals. Our empirical tests examine a sample of 122 companies recognised for their superior investor relations practices by the US *Investor Relations Magazine* Awards (IRMA) over the period 1996–2001. Tests compare IRMA firms to a control sample matched on industry, book-to-market ratio and firm size. Two complementary approaches are used to investigate the link between investor relations and the extent of the market-related costs imposed on US firms during this period. We fail to find any support for the view that a reputation for effective investor relations served to insulate firms from the systemic decline in investor confidence that occurred during our sample period. On the contrary, results indicate that firms with established investor relations reputations fared marginally worse on a series of market-related dimensions.

These findings are consistent with the hypothesis that heightened investor scepticism concerning the general credibility of management and financial reporting surrounding Enron and related events damaged the confidence investors had hitherto placed in investor relations. Instead of serving to insulate firms from systematic market downgrades resulting from heightened market scepticism regarding accounting quality and management credibility, Enron and subsequent scandals appear to have undermined established views of what constituted good investor relations. Viewed this way, while investor relations may have the potential to influence market valuations in particular circumstances, the activity may not serve as a truly reliable signal of credibility. Under normal market conditions, firms with well-developed investor relations practices may trade at a premium relative to their peers because effective investor relations helps increase investor confidence. However, when this confidence is dented, as it clearly was around the time of the Enron scandal, firms previously recognised for their investor relations activities may be more negatively affected.

Our findings can be viewed from a costly signalling perspective (Akerlof 1970). According to this theory, a signal is only effective if it can be used to distinguish superior firms (products, services, etc.) from inferior ones. From this perspective, investor relations activities only provide an effective costly signal for high-quality firms if lower quality firms are prevented from mimicking such a strategy (e.g. due to cost). One means through which firms can increase the cost associated with investor relations activities is to credibly commit to releasing bad news (as well as good news) in timely and transparent manner. Whether this can be achieved remains to be seen.

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Notes

1. Hong and Huang (2005) present a model where management engage in investor relations for reasons unrelated to stock price improvement. In their model, investor relations expenditure is driven by

insiders' incentives to enhance the liquidity of their equity stake in case they are forced to sell stock for liquidity reasons in the future.

2. For an economic analysis of how confidence in business as a whole can wax and wane as a function of the level of news about corporate scandals and wrong-doing, see Akerlof and Shiller (2009).
3. Tighter regulations imposed on companies concerning the disclosure of price-sensitive information occuring immediately before and after our test period including Regulation Fair Disclosure (SEC 2000) and Global Research Analyst Settlement (2005), have heightened the importance placed on corporate communications and the need for timely, transparent and honest financial information. These regulatory demands for corporate transparency were intended to force investor relations professionals to improve relations with cynical investors and regulators.
4. Enron ranked second in the 'Best Overall IR' category by IRM research in both 1999 and 2000.
5. The AIMR and IRMA reports have adopted fundamentally different perspectives on the relation between disclosure policy and investor relations. AIMR viewed investor relations as a component of firms' general disclosure policy, as evidenced by investor relations being one of the three subcategories used to determine firms' overall disclosure level. In contrast, the IRMA reports view investor relations as the underlying construct, of which disclosure policy represents one (important) element.
6. A detailed history of the events leading to the passing of SOX can be found in Li *et al.* (2008). Negative abnormal returns around some congressional events leading up to its enactment have been detected by several studies (Jain and Rezaee 2006, Zhang 2007, Li *et al.* 2008). Several explanations for this result have been proposed. In particular, the negative reaction may have indicated the ineffectiveness of the reform proposed or doubt amongst investors over the eventual passage of the Act (Jain and Rezaee 2006). Many commentators have also criticised the Act for imposing excessive costs on companies with little clear benefit (Jain and Rezaee 2006, Zhang 2007, Li *et al.* 2008).
7. We also conduct tests using an alternative method of selecting event dates. Instead of using dates from prior studies, we identified a sample of critical news events relating to the Enron, Global Crossing, Tyco and WorldCom scandals from a keyword search of the *Wall Street Journal* (WSJ) during calendar years 2001 and 2002 (see Section 7.3.1).
8. Most of the information transfer methods used in previous studies adjust returns for market risk when computing abnormal returns (Lang and Stulz 1992, Callen and Morel 2003, Asthana *et al.* 2008). However, we use raw stock returns since adjusting for market returns is not necessary in this design as the control firms have been matched according to industry, size and book-to-market, which control for systematic risk.
9. In addition, we have also computed the compounded cumulative return as a check on whether the portfolio rebalancing implied in the simple averaging method makes any difference to the results. Results are unchanged.
10. The base case industry is Mining and Construction.
11. See Sefcik and Thompson (1986) and Li *et al.* (2008) for a more detailed explanation of the implementation of this method.
12. In keeping with the literature (Farragher *et al.* 1994, Bushee and Miller 2010, Agarwal *et al.* 2008), we do not consider bias in analyst forecasts because we have no clear prediction what the effect of better investor relations might be on this variable. We also consider bias to be less important than forecast accuracy in the context of our analysis.
13. Searching citations and abstracts involves the following fields in Factiva: Author, Personal Name, Abstract, Product Name, Document Title, Subject, Company, Publication Name (Source) and Geographical Name.
14. As a sensitivity check we also compute forecast error using the average monthly forecast error computed over the first 12-month fiscal period preceding 31 August 2000 and 31 August 2003.
15. Sensitivity tests were conducted to ensure that our results are robust to these refinements. We obtain similar results when we include the firms that featured in the IRMA reports but were not winners or honourable mentions, financial and regulated firms, firms from all award categories and when we extend our sample to include firms that featured in the 2002 and 2003 IRM awards.
16. We conduct three different matching sensitivity checks on our data. First, matching by book-to-market to identify a control firm is a contentious issue as one could argue that higher valuations are one of the proposed consequences of effective investor relations. Therefore, matching on the basis of book-to-market may reduce our ability to detect valuation effects of investor relations and bias against the demand for investor relations in our control firms. Hence, we run our tests again, matching by year, industry and size alone. Instead of matching by the same size portfolio, we match by the smallest absolute difference in market capitalisation. Furthermore, we stipulate that the control firm can be no

more than 50% bigger or smaller than the IRMA firm. Second, we refine the industry match to firms within the same two-digit SIC category. For those cases where a match was unsuccessful ($N = 29$), one-digit SIC codes were used as a secondary matching procedure to ensure maximum sample size. Third, the control sample was found through matching by year, size and firms within the same two-digit SIC category. Again, instead of matching by the same size portfolio, we match by the smallest absolute difference in market capitalisation. Furthermore, the control firm can be no more than 50% bigger or smaller than the IRMA firm. Conclusions based on all three alternative matching procedures are consistent with those reported in the main text.

17. We use both market-based and non-market-based measures of size in case of problems with endogeneity.
18. The CRSP value-weighted market return was used as a proxy for market return.
19. News related to downgrades by debt agencies were excluded, for example, on 29 October 2001 Moody's downgraded Enron's long-term debt. Other news items that were considered largely firm specific were also excluded, for example, on 3 April 2002 WorldCom said it was cutting 3700 jobs in the USA.
20. The method used to compute the scores is deemed proprietary information and is not discussed in the IRMA research reports. Awards are also made for investor relations effectiveness across a further six specialist categories (not decomposed by size): Most Improved IR, M&A Investor Relations, Asia-Pacific IR in the US, European IR in the US, Latin America IR in the US, and IR for an IPO. We exclude these six categories from our analysis due to their limited scope and their focus on foreign firms.
21. Use of the four size categories was first introduced in the 2000 research report. Prior to that, three (two) size groupings were used in the 1998 and 1999 (1997) reports.

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Appendix

Investor Relations Magazine employs a specialist research agency to administer the surveys and write the reports. The basis of each year's survey is a target set of equity market professionals and retail investors. Thomson Financial/Carson supplies the list of investment professionals drawn from their client database. Professional investors are classified into buy-side and sell-side professionals to ensure equitable representation of each category. Buy-side individuals are then further subdivided into three categories: those with a small-cap following; those with assets under management of less than $5 billion; and those whose assets under management exceed $5 billion. Finally, individuals in the latter two groups are classified into portfolio managers and analysts using the Thomson Financial/Carson job function indicator. Barron's supplies details of retail investors. The resulting pool of market participants targeted by the survey represents a significant slice of the US investment community. For example, 17,156 (16,647) investment professionals and 2000 (1697) retail investors were invited to participate in the 2001 (2000) survey. Annual survey response rates vary between 10 and 12%.

Pre-selected versions of the main questionnaire, together with a separate small-cap questionnaire, are distributed to buy-side, sell-side and individual investor groups towards the end of January each year and the survey closes in early February. In addition to probing respondents' views of general trends in investor relations activities over the preceding year, the questionnaire asks investors to identify firms that, in their view, exhibited effective investor relations strategies. Firms are scored on their investor relations performance across the following 12 categories:[20]

- Grand Prix
- Annual Report†
- CEO
- Financial Media Relations†
- Investor Relations Officer†
- Corporate Advertising
- Conferencing†
- Retail Market IR
- Investment Community Meetings†
- Corporate Governance
- Senior Management Communications†
- Disclosure Policy†

Each category is divided into four size classifications according to market capitalisation: <$2.5 billion, $2.5–10 billion, $10–30 billion and >$30 billion.[21] The Grand Prix category is a composite score based on responses to eight questions [Best Overall Investor Relations Program (weighted 2/3 of total score), plus those categories marked †]. Details of all firms with a non-zero score for one or more of the investor relations categories listed above are disclosed in the final IRMA Report. Firms are ranked within each investor relations category–size group according to their score, and firms ranking in outright or joint first place are declared 'winners'. Firms ranking below first place that in IRM's view are also deserving of recognition due to their high score are awarded 'honourable mentions'.

Although we consider this survey to be the best measure of investor relations quality in the market, the IRMA data does have certain shortcomings. One disadvantage is that the IRMA survey results may be subject to greater response bias than the AIMR data. In particular, because respondents self-select to complete the IRMA questionnaire, their motivation for participating in the survey and nominating a particular firm may be driven by factors other than simply identifying the most effective investor relations programme. However, since respondents' views remain anonymous in the published reports, gains to submitting biased evaluations are unclear. Second, because the IRMA rankings rely partly on retail investors' views, they may contain greater noise if these respondents are less knowledgeable about effective investor relations practices. IRMA seeks to address this problem by using a special version of the questionnaire specifically targeted at non-expert investors. Any residual noise in the scores, while reducing the power of the empirical tests, is not expected to cause our results to be biased. Finally, as firms are scored under 12 different categories, the relation between the categories and investor relations quality may not be the same for each.

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As the dominant form of business organisations worldwide, family firms play a central role in the social and economic development of many countries. Indeed, family businesses create an estimated 70–90% of global GDP annually. Also, family firms comprise 80% to 90% of all business enterprises in North America and, on average, over 80% of businesses in the main European countries (e.g. France, Germany, Italy, Spain, Sweden, etc.) (FFI, 2010).

Notwithstanding such a dominance of family firms around the globe, the accounting literature, so far, has focused mainly on widely-held companies, leaving accounting issues in family businesses virtually unexplored. Because of the peculiarities of such firms on several dimensions – such as goals, investment horizons, organisational behaviour, governance structures and financial performance – the conclusions reached on widely-held companies may not be generalised easily to family firms.

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- Corporate governance and accounting policies in family firms
- Corporate social responsibility in family companies

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[1] EAR 2009 Impact Factor: 0.961. Half-cited life: 7.3.

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- Management compensation and incentives in family businesses
- Ethical issues related to reporting and accounting in family firms
- Accounting and control practices in family firms (e.g., performance measurement choices and design, capital budgeting/allocation and investment decision making)
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The stock price effects from downward earnings guidance versus beating analysts' forecasts: which effect dominates?

LYNN REES* and BRADY TWEDT

Department of Accounting, TAMU 4353, Texas A&M University, College Station, TX 77843-4353, USA

This paper provides evidence on the net stock price effects associated with managers following a disclosure strategy of guiding earnings down to a level where they can report a positive earnings surprise. Prior literature documents a stock price premium when firms meet or beat analysts' forecasts. However, studies also show a substantial negative price response to downward earnings guidance that can potentially negate any benefit from reporting a positive earnings surprise. We find that the negative stock price effect for firms that release downward earnings guidance is substantially larger than the stock price premium from meeting analysts' forecasts. Further, this downward guidance stock price penalty persists after explicitly controlling for other news that might be disclosed by managers that voluntarily provide guidance. These findings challenge conclusions made in some prior research that the optimal disclosure strategy is to ensure a positive earnings surprise at the earnings announcement date.

Keywords: earnings guidance; meet or beat; analysts' forecasts; stock returns

1. Introduction

This study examines the net stock price effects from following various disclosure strategies that separate total earnings news into management voluntary disclosures and the subsequent official earnings release. We are particularly interested in the net benefits from following a strategy where managers explicitly guide expectations down during a period in order to subsequently report a positive earnings surprise. In addition, we examine whether or not stock price effects associated with this disclosure strategy are permanent and can be justified on the basis of future earnings performance.

Our research question is motivated by several findings from the extant literature. In particular, prior research provides evidence suggesting that the overall reaction by investors to earnings news varies according to the manner in which the news is disclosed to the market.[1] This evidence implies the existence of an optimal disclosure strategy from the perspective of maximising

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*Corresponding author. Email: rees@tamu.edu

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stock price, and several studies have drawn inferences as to what is the optimal strategy. For example, Soffer *et al.* (2000) and Tan *et al.* (2002) argue that the optimal disclosure strategy is one where firms report a positive earnings surprise at the official earnings release date no matter whether the total earnings news is positive, neutral or negative. Consistent with this conclusion, the popular press and academic literature cite stock price implications as an explanation for why firms tend to walk down earnings expectations to a beatable level (Brown 2002, Richardson *et al.* 2004).[2] While not explicitly tested, the evidence in these studies suggests that the absolute stock price response to downward guidance is less than the stock price response to a positive earnings surprise.

However, evidence in other studies yields different implications. Specifically, research shows a more pronounced stock price response to management downward earnings guidance relative to upward guidance.[3] This finding suggests that for firms with negative earnings news, issuing downward guidance is unlikely to yield a more positive response to earnings news relative to remaining silent. Consistent with this view, Kasznik and Lev (1995) find that for a small sample of firms with large negative earnings news that employ a wide variety of voluntary disclosures,[4] the total stock price response for firms that warn is significantly more negative compared to a control sample of non-warning firms.[5] However, Tucker (2007) argues that this finding is driven by firms self-selecting into guidance and non-guidance samples depending on the amount of other bad news they face. Using a Heckman selection model, she finds that after controlling for this self-selection bias, firms with negative earnings news who warn are no longer penalised by the stock market relative to those who keep silent.

Thus, the extant literature showing a stock price penalty for firms that warn is difficult to reconcile with studies that conclude the optimal disclosure strategy is to guide earnings down to a beatable level. Accordingly, the net benefit from guiding expectations down in order to report a positive surprise is ambiguous. We contribute to this literature by explicitly modelling and comparing the stock price effects of issuing downward earnings guidance and meeting analysts' forecasts.

Our study is most closely related to Kasznik and Lev (1995) and Tucker (2007), both of which examine the overall stock price effect from warning about bad news. Besides explicitly comparing the stock price penalty from guiding forecasts down with the stock price premium from meeting analysts' forecasts, our study can be further differentiated from Kasznik and Lev (1995) in that we consider only earnings guidance for a substantially larger sample and over a different time period. We restrict the analysis to management earnings guidance because we are interested in whether the benefits to walking expectations down to a beatable target are worth the costs of issuing downward guidance. We also do not restrict the analysis only to firms with large earnings news, which increases the generalisability of our results. Expanding on the findings of Tucker (2007), we further examine whether any differential valuation can be justified based on either the simultaneous disclosure of unfavourable non-earnings news or future earnings performance. Thus, the evidence here can more directly assess the overall stock price effects of following an earnings disclosure strategy that guides expectations down in order to report a positive earnings surprise.

The sample is comprised of 8635 firm/quarter observations where managers provide explicit earnings guidance for quarter t subsequent to the earnings announcement for quarter $t-1$. Each sample observation is paired with a control firm matched on firm size, industry, time period and the level of total earnings news disclosed during the quarter. As shown in Figure 1, we define total earnings news as the difference between actual quarterly earnings and the first available mean consensus analyst forecast occurring after the earnings announcement for quarter $t-1$

Consistent with prior research (e.g. Brown 2001, Richardson *et al.* 2004, Cotter *et al.* 2006), we find that analysts' forecasts at the beginning of the quarter are generally optimistic, but tend to move downward over time to an attainable level. The propensity of firms to meet analysts'

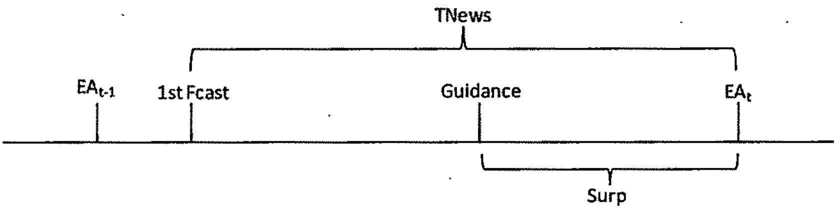

Figure 1. Earnings news timeline.
Note: EA = Earnings Announcement; 1st Fcast = First Consensus Analyst Forecast for quarters t and t+1; Guidance = Earnings Guidance; TNews = Total Earnings News determination period; Surp = Earnings Surprise determination period.

expectations is much stronger for guidance firms than for non-guidance firms. Specifically, guidance firms meet or beat expectations 79% of the time, whereas, the rate for non-guidance firms is only 55%. This evidence is consistent with managers using quarterly earnings guidance as a tool to keep expectations in check (Matsumoto 2002, Hsieh *et al.* 2006).

We find a significantly negative stock price penalty for firms that provide downward earnings guidance during the quarter, after controlling for the magnitude of total earnings news. Moreover, this downward earnings guidance penalty is larger in absolute value than the equity premium realised by firms that meet analysts' forecasts, as documented in prior research (Bartov *et al.* 2002, Lopez and Rees 2002). Thus, this evidence challenges the notion purported by some empirical and experimental studies that firms can maximise stock price by following a strategy of disclosing bad news during the quarter in order to report a positive surprise at the earnings announcement date. In fact, our evidence suggests that when total earnings news is negative, on average, firms are better off from a stock price perspective to not provide guidance during the quarter.

We examine whether the stock price penalty for downward earnings guidance in the current quarter can be explained by poor future earnings performance. As pointed out by Tan *et al.* (2002), different market reactions to various disclosure paths followed by managers could be due to certain signalling properties. If downward earnings guidance has signalling ramifications for periods beyond the current quarter, then the observed stock price penalty for these firms would be justified. In addition, it is possible that firms providing downward guidance for the current quarter also tend to simultaneously disclose or signal negative information about future performance (Tucker 2007).

To investigate these possibilities, we first estimate a regression model where abnormal returns are measured over multiple periods beginning in the quarter when the guidance is issued. These returns are regressed on contemporaneous aggregated earnings and indicator variables for downward guidance and positive surprises at earnings announcement dates (along with other controls). If the stock price penalty is a consequence of the downward guidance signalling unfavourable information about future earnings, its significance should be attenuated when future earnings are explicitly included in the model. We do not document this result but rather, the stock price penalty for downward earnings guidance in the current quarter persists into the future even when we explicitly control for future earnings. In contrast, we observe a significant reduction in the equity premium to meeting analysts' forecasts, which is consistent with the view that meeting analysts' forecasts is a signal about superior future performance that is impounded into the current stock price (Kasznik and McNichols 2002). As a sensitivity analysis, we also perform a two-stage Heckman selection model to control for self-selection bias, consistent with Tucker (2007). The use of the two-stage model does not qualitatively affect our results in that we continue to find a significant stock price penalty for firms that provide downward earnings guidance, even when the guidance allows firms to meet analysts' forecasts.

This study contributes to the literature by showing that earnings disclosure strategies that result in a positive earnings surprise are not always preferred from a valuation perspective, because the negative stock price effects from providing downward guidance can dominate the positive equity premium from meeting analysts' forecasts. Further, we show that the stock price penalty to downward earnings guidance persists for several future quarters even after controlling for future earnings performance. These results challenge the conventional wisdom that companies can benefit from warning investors about impending bad news. However, they are consistent with other studies such as Kasznik and Lev (1995) and Hutton *et al.* (2003) that show a disproportionate negative reaction to downward guidance.

Our study provides a potential explanation for why firms might discontinue the practice of issuing earnings guidance. A 2007 survey by the National Investor Relations Institute indicates that 51% of its members in that year provided earnings guidance, which is a substantial decline from 77% in 2003. Recent studies that examine firm characteristics associated with the decision to stop providing earnings guidance consistently find that guidance stoppers tend to have poor current operating performance (e.g. Chen *et al.* 2007, Cheng *et al.* 2007, Houston *et al.* 2010). Evidence in this study suggests that firms might decide to discontinue guidance during periods of poor performance because of the significantly negative valuation effect, which is greater than the option of remaining silent and reporting a negative earnings surprise. A recent working paper finds that when total earnings news for a period is negative, a greater proportion of it is released through the earnings announcement relative to positive total earnings news (Roychowdhury and Sletten 2010). This evidence suggests that many managers might be aware of the penalty for downward guidance and take actions to avoid it.

The paper proceeds as follows. In the next section, we review the literature related to this study and develop our hypothesis. Section 3 describes the sample. Sections 4 and 5 provide empirical results. In Section 6, we reconcile results from this study with prior empirical work that has examined earnings preannouncement strategies. The final section offers some conclusions and discussion.

2. Literature review and hypothesis development

It is well established that stock returns are positively associated with a firm's earnings news, where total earnings news for a quarter is defined as the difference between the market's earnings expectations at the beginning of the period and actual realised earnings (see Figure 1). Managers can choose when and how to communicate earnings information to the market, and many firms provide voluntary earnings guidance about current and future earnings. Many studies have documented a significant stock price reaction to news contained in earnings guidance, which indicates that these disclosures are credible (McNichols 1989, Pownall and Waymire 1989, Pownall *et al.* 1993, Atiase *et al.* 2005).

Managers give several reasons for why they provide earnings guidance, including, mitigating stock price volatility, building a wider shareholder base and satisfying a market demand for information (Hsieh *et al.* 2006). Achieving higher valuations is another frequently cited reason that is supported by academic research. That is, several studies find a stock price premium (penalty) to meeting (missing) analysts' forecasts (Lopez and Rees 2002, Skinner and Sloan 2002). In addition, research evidence is consistent with managers manipulating accruals (Moehrle 2002, Dhaliwal *et al.* 2004) or even real decisions (Graham *et al.* 2005) in order to achieve earnings targets. Managing expectations through earnings guidance is another tool available to managers (Matsumoto 2002, Baik and Jiang 2006, Cotter *et al.* 2006).

From a valuation perspective, guiding earnings down to a beatable level explicitly assumes that the market reaction to a positive earnings surprise at the earnings announcement date more than compensates for the negative response to earnings guidance. Some support for this view is provided by Bartov *et al.* (2002). Although they do not directly examine explicit earnings guidance disclosed by managers, they find that investors assign a smaller weight to analysts' forecast revisions during a quarter compared to earnings surprises at the earnings announcement date. Other archival and experimental studies provide additional support for the idea that stock price is maximised by ensuring a positive surprise at the earnings announcement date, even when it involves issuing downward guidance during the period. Soffer *et al.* (2000) find that most firms use earnings preannouncements to avoid a negative surprise at the official earnings release date, and that firms realise a more negative stock price reaction when they report a negative earnings surprise (holding the level of total earnings news constant). In an experimental setting, Tan *et al.* (2002) show that analysts' forecasts of future earnings are higher when firms understate positive news and overstate negative news prior to an earnings announcement. Miller (2005) presents evidence indicating that reactions by investors and analysts to total earnings news are more pronounced when the earnings guidance and the official earnings announcement surprise are of the same sign. In all these studies, the results imply that the optimal strategy from a stock price perspective is to disclose total earnings news to ensure a positive earnings surprise at the earnings announcement date, which would include guiding earnings down during periods when total earnings news is negative.

However, a primary motivation for the current study is extant research that appears to contradict the notion that firms are better off from a stock price perspective to warn investors when they have negative earnings news. Caylor *et al.* (2007) do not explicitly examine earnings guidance but examine analyst forecast revisions and abnormal returns for various earnings paths that firms can take during a quarter. They find that across all earnings paths, investors do not always assign a greater weight to the earnings surprise compared to the forecast revision during the period and that, although differential pricing exists across earnings paths, stock returns are not always maximised by reporting a positive earnings surprise at the official earnings release date. The authors reconcile their seemingly contrasting results with prior findings by showing that separate analyses of different earnings paths that were combined in previous research can lead to different conclusions. In addition, Hutton *et al.* (2003) find that the stock price response is substantially more pronounced when management provides downward guidance compared to upward guidance. Specifically, they find a mean stock price reaction of −9.96% to downward guidance but only 1.93% for upward guidance. Other studies find a similar asymmetric response to downward and upward management guidance (Skinner 1994, Kothari *et al.* 2009). Thus, when a firm has negative total earnings news, it is not obvious that the optimal preannouncement strategy would be to guide expectations down in order to report a positive earnings surprise.

Finally, Kasznik and Lev (1995) examine all corporate voluntary disclosures 60 days prior to a large earnings surprise announcement[6] and find that the stock price reaction to earnings news for firms that warn is more negative compared to a control group of no-warning firms. These results suggest that firms realise a stock price penalty for issuing downward guidance, and contrast with popular opinion in the business press that investors have little tolerance for earnings disappointments and will punish those firms that do not warn. However, Tucker (2007) provides evidence suggesting that the results in Kasznik and Lev (1995) are driven by a failure to control for a systematic bias that occurs when downward guidance firms tend to have other bad news that is not explicitly contained in the current period guidance.

The contrasting implications from the above studies prevent us from extrapolating their results to the net valuation consequences of issuing downward earnings guidance in order to report a positive earnings surprise. Given that recent research finds that firms tend to discontinue the practice of issuing guidance during periods of poor performance, we examine the following hypothesis:

> Hypothesis: *Firms realise a stock price penalty from issuing negative quarterly guidance that is greater in absolute value than the stock price premium from meeting analysts' forecasts.*

3. Description of sample

The sample employed in this study is comprised of 8635 earnings guidance observations issued by 2751 unique firms over the period 1993–2006 as obtained from the First Call *Company Issued Guidance* (CIG) database.[7] While we are particularly interested in the net effects of downward guidance and a positive earnings surprise, we retain all guidance observations in the sample in order to assess differences in our results across different types of guidance. Table 1 provides a breakdown of the sample selection process. We begin by extracting from the CIG database all available management disclosures that relate to earnings. The initial screen eliminates almost 15,000 observations where the management guidance is open-ended or qualitative such that the nature and/or magnitude of the news cannot be unambiguously determined. The focus in this study is on quarterly earnings guidance and accordingly, approximately 48% of the remaining observations are deleted because they are disclosures about annual earnings. We include only the last guidance observation for firms that provide guidance more than once during the quarter.

We obtain data on analysts' forecasts, actual earnings and earnings announcement dates from I/B/E/S. To conduct the analyses, we require that firms must have a consensus forecast for quarters t and $t+1$ prior to the management guidance date for quarter t but after the earnings announcement date for quarter $t-1$, and a consensus forecast for quarter $t+1$ that occurs after the earnings announcement date for quarter t. Firms are eliminated when these forecasts are unavailable along with actual earnings and an earnings announcement date from I/B/E/S. An additional 97 observations are deleted where the earnings announcement date is more than

Table 1. Sample selection process.

	No. of firms	No. of observations
Data on First Call's *Company Issued Guidance* database from 1993 to 2006	6698	86,413
Sample screens:		
Delete open-ended or qualitative management guidance	5703	71,606
Delete annual guidance	4953	37,462
Retain only the last guidance for the quarter	4902	29,222
Delete observations with insufficient analysts' forecast data[a]	3257	11,823
Delete observations where earnings announcement occurs more than 75 days after quarter end	3230	11,730
Delete observations with insufficient CRSP data	3122	11,375
Delete observations with insufficient data for matched firm[b]	2751	8635
Total sample of quarterly earnings guidance observations	2751	8635

[a] The following analysts' forecasts from I/B/E/S are required for an observation to be retained in the sample: (1) mean consensus forecast for quarter t that occurs after the earnings announcement from quarter $t-1$ and before the earnings guidance for quarter t, (2) mean consensus forecast for quarter $t+1$ that occurs after the earnings announcement from quarter $t-1$ and before the earnings guidance for quarter t, and (3) mean consensus forecast for quarter $t+1$ that occurs after the earnings announcement in quarter t.

[b] We require the matched firm to have returns data available on CRSP and actual earnings and analyst forecast data on I/B/E/S.

75 days after the fiscal quarter end. Thus, for our sample, earnings is disclosed on a timely basis for the period, which mitigates confounding factors that can affect returns but not show up in earnings for quarter *t*. Two additional screens eliminate observations that have missing stock returns data from CRSP (355 observations) and where the matching procedures do not yield a matched firm with sufficient data from I/B/E/S and/or CRSP (2740 observations).

To control for various factors that could affect the earnings/return relation, we obtain a matched control sample of firms that did not provide earnings guidance during the quarter. The matching procedure is as follows. First, for each firm/quarter guidance observation, we obtain all firms listed on I/B/E/S that are in the same industry[8] and did not provide guidance during the quarter (both qualitative and quantitative guidance firms are excluded). We also require that the sign of total earnings news is the same for the guidance and matched firms, and the absolute difference in total earnings news between the guidance and matched firms is less than or equal to five cents. Total earnings news is defined as the difference between actual earnings and the first available mean consensus analyst forecast for quarter *t* that occurs after the earnings announcement for quarter $t - 1$ (see Figure 1). Finally, we require that firm size, as measured by the quarter end market value of equity, for the matched firm is between 75 and 125% of firm size for the guidance firm. From this set of potential matches, we choose the firm that is closest to the guidance firm's total earnings news. If there are more than one possible match firms that minimise the difference in total earnings news, we choose the firm that minimises the difference in market value of equity. Thus, the non-guidance matched firms control for the sign and magnitude of total earnings news, industry, firm size and time period.[9]

Table 2 provides descriptive statistics for the guidance and no-guidance control samples. Sample size varies across the different firm characteristics listed in Table 2 because of the availability of financial statement data from COMPUSTAT, which was not a criterion in the sample selection process. The mean undeflated earnings per share (EPS) for the guidance and matched firms are about $0.26 and $0.22, respectively. Most firms have negative total earnings news for the period as indicated by TNews%, defined as total earnings news deflated by price as of the first consensus analyst forecast for quarter *t* occurring after the earnings announcement for quarter $t - 1$. This result is consistent with general optimism in analysts' forecasts at the beginning of the quarter. Firm characteristics related to size (analyst following, total sales and total assets) suggest that the matching procedure on size was successful. Although we use market value of equity as the matching variable, we do not find substantial median differences in analyst following, sales and total assets across the guidance and no-guidance samples. Dispersion in analysts' forecasts is slightly greater for the no-guidance sample, which might be expected given that the control sample is probably less likely to have provided guidance at any time prior to the first consensus forecast for the period. The median market-to-book ratio (MB) and leverage (Lev) are fairly close across the two samples, although the variability in both appears to be somewhat greater for the control firms.

In Table 3, the guidance observations are partitioned into groups based on the direction of the earnings guidance and the nature of the earnings surprise at the subsequent official earnings release. The direction of earnings guidance is determined by comparing the guidance to the mean consensus analyst forecast that exists prior to the guidance. Similarly, the nature of the earnings surprise at the official earnings release is considered positive (neutral) [negative] when actual earnings are greater than (equal to) [less than] the management forecast. In the final row of Table 3, we present the direction of earnings news at the earnings announcement date for the matched sample of no-guidance firms. For the matched sample, the nature of the earnings surprise is determined by comparing actual earnings with the most recent available mean consensus analyst forecast prior to the earnings announcement date.

The cell frequencies in Table 3 reveal that most earnings guidance is negative (63%). Also, only 21% of guidance firms experience a negative surprise at the earnings announcement date, which is

Table 2. Descriptive statistics.

Variable	Sample	N	Mean	Median	Inter-quartile range
EPS	Earnings guidance sample	8635	\$0.26	\$0.21	\$0.35
	Matched sample	8635	0.22	0.18	0.40
TNews%	Earnings guidance sample	8635	−0.36%	−0.11%	0.64%
	Matched sample	8635	−0.44	−0.11	0.64
AnaF	Earnings guidance sample	8635	7.6	6	7
	Matched sample	8635	6.4	5	7
Disp	Earnings guidance sample	7934	1.9%	1%	1%
	Matched sample	7287	3.0	2	2
MB	Earnings guidance sample	8613	2.9	2.2	2.0
	Matched sample	8601	3.7	2.1	2.4
Lev	Earnings guidance sample	8612	1.3	0.8	1.2
	Matched sample	8599	1.7	0.9	1.4
Assets	Earnings guidance sample	8635	\$2705	\$533	\$1559
	Matched sample	8635	2895	563	1746
Sales	Earnings guidance sample	8627	\$569	\$141	\$383
	Matched sample	8628	480	121	335

The earnings guidance sample is comprised of observations from First Call's *Company Issued Guidance* database during the period 1993–2006 where the firm disclosed quarterly earnings guidance after the earnings announcement for quarter $t - 1$ and before the official earnings announcement for quarter t (see Table 1 for the sample selection criteria). Each firm/quarter guidance observation is matched with a no-guidance firm where the matching criteria are calendar quarter, industry, size, and the sign and magnitude of total earnings news. Total earnings news is defined as the unscaled difference between actual earnings per share for quarter t less the first mean consensus forecast for the same period that is issued after the earnings announcement for quarter $t - 1$.

Variable definitions: EPS = reported actual earnings per share for quarter t; TNews% = EPS minus the first mean consensus analyst forecast for the period occurring after the earnings announcement for quarter $t - 1$, deflated by stock price as of the first consensus analyst forecast for the period; AnaF = the number of unique analyst forecasts that comprise the last consensus forecast for quarter t; Disp = dispersion in analysts' forecasts that comprise the last consensus forecast for quarter t; MB = market value of common stock divided by the book value of common shareholders' equity as of the end of fiscal quarter t; Lev = total liabilities divided by total shareholders' equity as of the end of fiscal quarter t; Assets = total assets as of the end of fiscal quarter t; Sales = total revenues for quarter t.

substantially smaller than 45% of no-guidance firms that report a negative earnings surprise. Most of the negative earnings surprises for guidance firms occur when downward guidance is disclosed during the quarter but the guidance failed to disclose all of the bad news (76%). However, among all firms with downward guidance, 22% disclose all of the bad news at the guidance date, and 53% reveal something greater than the bad news (resulting in a positive earnings surprise).

4. Contemporaneous valuation effects of downward earnings guidance

In this section, we examine the net stock price effects from issuing downward earnings guidance and meeting analysts' forecasts during a quarter. In Table 4, we present statistics on the market reaction to earnings news after partitioning the guidance and matched samples based on the level of total earnings news. Panels A and B report median returns for firms with positive and negative total earnings news, respectively. The variable CAR^{EG} represents the three-day size-adjusted return from one day before to one day after the guidance date. CAR^{EA} is the three-day size-adjusted return surrounding the earnings announcement date. The last abnormal return metric (lwCAR) is a long-window size-adjusted return that extends from one day before the first mean consensus analyst forecast for the quarter until one day following the earnings announcement date. This quarterly return metric captures the entire valuation effects of total earnings news disclosed during the period.

Table 3. Frequency matrix of news released at the earnings guidance and official earnings announcement dates.

	Nature of earnings surprise			
Direction of earnings guidance	Positive	Neutral	Negative	Totals
Up				
N	1,576	439	367	2,382
% of row total	66%	19%	15%	100%
% of column total	32%	23%	20%	27%
Confirming				
N	459	312	69	840
% of row total	55%	37%	8%	100%
% of column total	9%	16%	4%	10%
Down				
N	2857	1197	1359	5413
% of row total	53%	22%	25%	100%
% of column total	59%	61%	76%	63%
Totals				
N	4892	1948	1795	8635
% of row total	57%	22%	21%	100%
% of column total	100%	100%	100%	100%
No earnings guidance	3681	1021	3933	8635
	43%	12%	45%	100%

The guidance sample consists of 8635 observations during the period 1993–2006 as obtained from First Call's *Company Issued Guidance* database where managers provided quarterly earnings guidance for quarter t after the earnings announcement for quarter $t-1$ (see Table 1 for sample screening criteria). The direction of earnings guidance is determined by comparing the guidance with the mean consensus analyst forecast that exists immediately prior to the guidance. The nature of the news at the official earnings announcement date is considered positive (neutral) [negative] when actual earnings are greater than (equal to) [less than] the earnings guidance for the guidance sample. For the matched sample, the nature of news at the official earnings announcement date is considered positive (neutral) [negative] when actual earnings are greater than (equal to) [less than] the most recent mean consensus forecast for the period.

Focusing on the group of firms with small (1–5 cents) positive total earnings news in Panel A, the investor response surrounding the guidance is slightly positive, as indicated by the 1.4% abnormal return.[10] The median abnormal return surrounding the subsequent earnings announcement is also positive, albeit small in magnitude (only 0.9%). This evidence is consistent with managers disclosing only a portion of good news at the guidance date (Soffer *et al.* 2000). The abnormal return for the no-guidance matched sample is 1.6% at the earnings announcement date and is significantly greater than the return for the guidance sample, which is to be expected given that some of the good news for the guidance sample was disclosed previously when the guidance was issued. The overall abnormal return for the quarter (lwCAR) is close to 4% for both groups and is not significantly different across the two samples.

Turning now to the medium (+6 to +15 cents) and large (>+ 15 cents) total earnings news partitions, we continue to find significantly positive abnormal returns around the guidance date and the earnings announcement date for the guidance sample, indicating that the guidance provides positive news to the market, but that managers saved some positive news for the earnings announcement. One important difference for the medium and large total earnings news subsamples, however, is that we observe a more pronounced quarterly return for the guidance sample relative to the quarterly return for the no-guidance matched sample. The difference is

Table 4: Median stock returns across different guidance paths.

	N	CAR^{EG}	CAR^{EA}	lwCAR
	Panel A: Positive total earnings news			
TNews from +1 to +5				
Guidance sample	1953	1.4%	0.9%	3.9%
Matched sample	1953	NA	1.6	3.8
Median difference		NA	−0.6***	0.3
TNews from +6 to +15				
Guidance sample	845	4.3%	1.4%	10.9%
Matched sample	845	NA	2.5	7.2
Median difference		NA	−1.4***	2.9***
TNews greater than +15				
Guidance sample	175	5.2%	1.6%	12.6%
Matched sample	175	NA	2.8	8.7
Median difference		NA	−1.1	4.3***
	Panel B: Negative total earnings news			
TNews from −1 to −5				
Guidance sample	1859	−3.5%	−0.0%	−6.7%
Matched sample	1859	NA	−1.3	−2.5
Median difference		NA	1.2***	−4.1***
TNews from −6 to −15				
Guidance sample	2203	−8.5%	0.1%	−12.4%
Matched sample	2203	NA	−1.3	−5.1
Median difference		NA	1.5***	−7.9***
TNews less than −15				
Guidance sample	975	−11.4%	−0.4%	−18.0%
Matched sample	975	NA	−1.6	−7.2
Median difference		NA	1.2***	−8.6***

The guidance sample consists of 8635 observations during the period 1993–2006 as obtained from First Call's *Company Issued Guidance* database where managers provided quarterly earnings guidance for quarter t after the earnings announcement for quarter $t-1$ (see Table 1 for sample screening criteria). TNews is defined as the unscaled difference between actual earnings per share for fiscal quarter t and the first mean consensus analyst forecast for the same period issued after the earnings announcement for quarter $t-1$. CAR^{EG} is a three-day size-adjusted return from one day before to one day after the earnings guidance. CAR^{EA} is a three-day size-adjusted return from one day before to one day after the official earnings announcement. lwCAR is a size-adjusted return extending from one day before the first mean consensus analyst forecast for quarter t to one day after the official earnings announcement date for quarter t.

*, ** and *** indicate the median difference is statistically significant at the $\alpha = 0.10$, 0.05 and 0.01 levels, respectively, using a two-tailed sign test.

statistically significant at the $\alpha = 0.01$ level for both medium and large positive total earnings news. Thus, for medium and large total earnings news, univariate differences in medians suggest that firms can realise more positive abnormal returns when they provide guidance during the period. Assuming that the guidance does not disclose more than 100% of the good news, this result is consistent with the cue consistency theory forwarded in Miller (2005).

Results for firms with negative total earnings news are reported in Panel B of Table 4, and it is here where substantial differences arise between the guidance and no-guidance samples. When the negative total earnings news is small (−1 to −5 cents), the three-day abnormal return surrounding the guidance is large in absolute value, −3.5%. The absolute magnitude is substantially greater than the 1.4% abnormal return for small upward guidance in Panel A, however, this could be due to managers disclosing a greater portion of bad news relative to the portion of good news they disclose at the guidance date. The median abnormal return at the earnings announcement date is not significantly different from zero for the guidance sample,[11] and is -1.3% for the no-guidance sample. This difference is statistically significant at the $\alpha = 0.01$ level, as would be expected since the guidance sample likely disclosed their bad news at the guidance date. However, the finding in the last column that the quarterly abnormal return is significantly more negative for the guidance sample suggests that firms might be penalised from a stock price perspective for providing the guidance relative to those firms with no guidance. The difference of 4.1% is substantial given the relatively low level of total earnings news.

For the medium (-6 to -15 cents) and large (< -15 cents) negative total earnings news groups, we find qualitatively similar results but larger magnitudes for the median levels and differences in medians. Most importantly, quarterly abnormal returns to negative total earnings news are much more pronounced when firms provide guidance during the period. The differences in lwCAR for the medium and large total earnings news groups are -7.9 and -8.6%, respectively. These magnitudes are substantially greater in absolute magnitude than the corresponding differences for positive total earnings news in Panel A, and provide preliminary evidence consistent with there being a stock price penalty for negative quarterly earnings guidance.

To more fully control for the effects of the magnitude of total earnings news on returns, we estimate the following regression (firm and time subscripts omitted):

$$\begin{aligned}\text{lwCAR} = {} & \beta_0 + \beta_1\text{TNews\%} + \beta_2\text{GUIDE} + \beta_3\text{DOWN}^{\text{Guide}} + \beta_4\text{PS}^{\text{EA}} + \beta_5\text{PTNews} \\ & + \gamma_i \sum_{i=1}^{53} \text{QTR} + \varepsilon. \end{aligned} \tag{1}$$

The variables lwCAR (long-window return) and TNews% (total earnings news) have been defined previously. GUIDE is an indicator variable equal to one when the firm provides guidance during the quarter, and zero if the observation is a matched control firm. $\text{DOWN}^{\text{Guide}}$ is an indicator variable equal to one when the quarterly earnings guidance direction is negative, and zero otherwise. Thus, the sum of β_2 and β_3 yields the average effect on returns from issuing downward earnings guidance after controlling for total earnings news. A negative sum would be consistent with the preliminary findings in Table 4 suggesting a market penalty to issuing an earnings warning. The coefficient on GUIDE (β_2) provides evidence as to how stock prices are affected by the issuance of upward and confirming guidance.

The variable PS^{EA} is an indicator variable equal to one when the firm reports a positive surprise at the earnings announcement date, and zero otherwise. The coefficient on this variable is expected to be positive if the firm receives a market reward from reporting actual earnings that beat expectations, as documented in prior research (Bartov *et al.* 2002). Thus, the sum of $\beta_2 + \beta_3 + \beta_4$ compares the positive stock price effects that arise from the firm reporting a positive earnings surprise with the negative effects from issuing an earnings warning (after controlling for the magnitude of total earnings news), and represents a formal test of our hypothesis.

PTNews is an indicator variable equal to one when the firm's total earnings news is positive, and zero otherwise. Caylor *et al.* (2007) provide evidence that the market reward to meeting analysts' forecasts is more a function of the first analyst forecast as opposed to the most recent forecast. Thus, if this finding holds for our sample and period, we expect the coefficient on this variable to be positive.

To test the significance of the coefficient magnitudes in Equation (1) (and all other regression equations), we control for dependency in the error terms by reporting standard errors clustered by firm and include quarterly dummy variables in the regression (Rogers 1993, Petersen 2009). To control for outliers and observations with undue influence on the regression parameters, we delete observations where the value of total earnings news is greater in absolute value than 25% of stock price or abnormal returns is greater than 100% in absolute value.[12]

The results from estimating Equation (1) are reported in Table 5 (quarterly dummies not reported). In addition to the full model, we report results from estimating a reduced model that merely examines the well-known relation between earnings and contemporaneous returns and forecast revisions. Comparing the full and reduced models provides some insight as to the effect of the indicator variables on the model's fit and their significance in explaining how investors and analysts respond to total earnings news. As expected, TNews% is highly significant. The magnitude of the slope coefficient suggests that for each dollar of total earnings news, stock price increases by approximately \$3.41. Measurement error in the explanatory variable and non-linearities in the regression both suggest that this slope coefficient is likely understated (Kothari and Zimmerman 1995).

Upon estimating the full model, we find a significant increase in the adjusted-R^2 and TNews% remains highly significant. We document a significantly positive coefficient on GUIDE, which indicates that firms realise a small stock price bump from providing upward guidance during the period independent of total earnings news, which is consistent with evidence presented in Table 4. Also consistent with Table 4 results, we find a significantly negative stock price effect on quarterly earnings of about −9.3% (−10.8 + 1.5) when firms issue downward earnings guidance. As expected and consistent with prior research, there is an equity premium to meeting the most recent analyst forecast after controlling for the magnitude of total earnings news (Lopez and Rees 2002). However, this equity premium does not compensate for the downward earnings guidance, as the absolute magnitude of $\beta_2 + \beta_3$ is significantly greater than that of β_4 (p-value = 0.001).[13]

Table 5. Results from regression analysis of market reaction to total earnings news.

Regression equation:

$$\text{lwCAR} = \beta_0 + \beta_1\text{TNews\%} + \beta_2\text{GUIDE} + \beta_3\text{DOWN}^{\text{Guide}} + \beta_4\text{PS}^{\text{EA}} + \beta_5\text{PTNews} + \gamma_i\sum_{i=1}^{53} QTR + \varepsilon$$

	β_0	β_1	β_2	β_3	β_4	β_5	Adj. R^2	N
Coef.	−0.003	**3.406**					6.7%	17,192
(t-stat.)	(−0.36)	**(12.4)**						
Coef.	**−0.033**	**1.525**	**0.015**	**−0.108**	**0.024**	**0.085**	15.6%	17,192
(t-stat.)	**(−3.66)**	**(6.79)**	**(3.45)**	**(−18.82)**	**(5.37)**	**(15.7)**		
			$\boldsymbol{\beta_2 + \beta_3 + \beta_4 = -0.069}$					

Definition of regression variables: lwCAR is the size-adjusted return extending from one day before the first mean consensus forecast for quarter t occurring after the earnings announcement for quarter $t-1$ to one day after the earnings announcement for quarter t. TNews% is defined as the difference between actual earnings per share for fiscal quarter t and the first mean consensus analyst forecast for quarter t made after the earnings announcement for quarter $t-1$, deflated by stock price as of the first consensus analyst forecast for quarter t occurring after the earnings announcement for quarter $t-1$. GUIDE is an indicator variable equal to one if the company issued earnings guidance during the quarter (and zero otherwise). PS^{EA} is an indicator variable equal to one when actual earnings exceeds the earnings guidance for the guidance sample, or the last mean consensus analyst forecast for the matched sample (and zero otherwise). PTNews is an indicator variable equal to one when TNews% is positive (and zero otherwise). $\text{DOWN}^{\text{Guide}}$ is an indicator variable equal to one when the earnings guidance is less than the most recent mean consensus analyst forecast that exists prior to the guidance (and zero otherwise).

Coefficients are presented in bold when they are statistically significant at the $\alpha = 0.05$ level using a two-tailed test. Standard errors clustered by firm with time period dummy variables (coefficients not reported) are used to control for correlation in the error terms.

The results in Tables 4 and 5 provide new insight as to the net effects from a valuation perspective of guiding earnings down in order to report a positive earnings surprise. When firms have negative total earnings news, they would appear to benefit from going silent, which helps explain why firms choose this route during periods of poor operating performance (e.g. Chen *et al.* 2007, Cheng *et al.* 2007, Houston *et al.* 2010). The results are in stark contrast with research on preannouncement strategies (e.g. Soffer *et al.* 2000, Tan *et al.* 2002) suggesting that the optimal strategy is one that ensures a positive earnings surprise at the earnings announcement date. It appears that the pronounced investor reaction to downward earnings guidance is not offset by the equity reward from reporting a positive surprise, which is a new finding that this study contributes to the literature.

5. Rationality of the stock price penalty for downward earnings guidance

The previous section documents a net stock price penalty to issuing downward quarterly guidance, even after considering the stock price bump from beating analysts' forecasts. In particular, the evidence in Tables 4 and 5 consistently shows that downward guidance results in lower quarterly abnormal returns. This response by investors could be rational if firms, by choosing to issue downward earnings guidance in the current period, are signalling (either implicitly or explicitly) poor future performance. Alternatively, given that earnings guidance merely communicates differently the same earnings information for the current period after holding constant the level of total earnings news, it's possible the results are due to a market overreaction to downward earnings guidance. In an experimental setting, Libby and Tan (1999) find that although analysts believe earnings declines are less permanent for those firms that warn investors, the process of sequentially processing two signals (an earnings preannouncement warning and the subsequent actual earnings release) results in lower forecasts of future earnings for firms that warn of bad news. This disconnect between what individuals believe and how they behave is a common finding in the judgment and decision-making psychology literature (Libby 1981).

To provide evidence on whether the stock price penalty to downward earnings guidance is rational, we first estimate regressions that aggregate earnings news and equity returns over multiple periods. The association of downward guidance with contemporaneous forecast revisions and abnormal returns could be a function of guidance firms disclosing more bad news about future earnings realisations (Tucker 2007). If this is the case, by including future earnings performance in a regression model where equity returns are cumulated over the corresponding periods that earnings are aggregated, we should observe an attenuation of the coefficient on $\mathrm{DOWN}^{\mathrm{Guide}}$ since any future earnings signal contained within the downward guidance is explicitly included in the model. Likewise, prior research generally attributes the stock price premium to meeting analysts' forecasts as a signal for superior future performance (Bartov *et al.* 2002). If this is the case, a similar attenuation for the coefficients on $\mathrm{PS}^{\mathrm{EA}}$ and PTNews should be observed as future earnings realisations are included in the model.

Accordingly, we estimate the following three regressions, where earnings and returns are aggregated over two, three and four quarters, respectively.

Two-period model

$$\begin{aligned}\mathrm{CAR}^2 = {} & \gamma_0 + \gamma_1 \mathrm{TNews\%}^2 + \gamma_2 \mathrm{GUIDE} + \gamma_3 \mathrm{DOWN}^{\mathrm{Guide}} + \gamma_4 \mathrm{PS}^{\mathrm{EA}} + \gamma_5 \mathrm{PTNews} \\ & + \gamma_6 \mathrm{PS}^{\mathrm{EAt+1}} + \gamma_7 \mathrm{PTNews}^{t+1} + \beta_i \sum_{i=1}^{53} \mathrm{QTR} + \varepsilon\end{aligned} \tag{2}$$

Three-period model

$$\mathrm{CAR}^3 = \gamma_0 + \gamma_1\mathrm{TNews\%}^3 + \gamma_2\mathrm{GUIDE} + \gamma_3\mathrm{DOWN}^{\mathrm{Guide}} + \gamma_4\mathrm{PS}^{\mathrm{EA}} + \gamma_5\mathrm{PTNews} + \gamma_6\mathrm{PS}^{\mathrm{EAt+1}} + \gamma_7\mathrm{PTNews}^{t+1} + \gamma_8\mathrm{PS}^{\mathrm{EAt+2}} + \gamma_9\mathrm{PTNews}^{t+2} + \beta_i\sum_{i=1}^{53}\mathrm{QTR} + \varepsilon \tag{3}$$

Four-period model

$$\mathrm{CAR}^4 = \gamma_0 + \gamma_1\mathrm{TNews\%}^4 + \gamma_2\mathrm{GUIDE} + \gamma_3\mathrm{DOWN}^{\mathrm{Guide}} + \gamma_4\mathrm{PS}^{\mathrm{EA}} + \gamma_5\mathrm{PTNews} + \gamma_6\mathrm{PS}^{\mathrm{EAt+1}} + \gamma_7\mathrm{PTNews}^{t+1} + \gamma_8\mathrm{PS}^{\mathrm{EAt+2}} + \gamma_9\mathrm{PTNews}^{t+2} + \gamma_1 0\mathrm{PS}^{\mathrm{EAt+3}} + \gamma_{11}\mathrm{PTNews}^{t+3} + \beta_i\sum_{i=1}^{53}\mathrm{QTR} + \varepsilon. \tag{4}$$

The dependent variables in the respective models (CAR^2, CAR^3 and CAR^4) are size-adjusted returns extending from one day prior to the first mean consensus forecast in quarter t through one day following the earnings announcement in quarters $t+1$, $t+2$ and $t+3$, respectively. Therefore, these returns reflect earnings information disclosed within the earnings guidance in quarter t and the entire subsequent quarter(s). $\mathrm{TNews\%}^2$, $\mathrm{TNews\%}^3$ and $\mathrm{TNews\%}^4$ are the total earnings news aggregated over the quarters that correspond with the dependent variable, deflated by stock price as of the first consensus analyst forecast for quarter t occurring after the earnings announcement for quarter $t-1$. Specifically, total earnings news in quarter t is defined as before (actual earnings in quarter t less the first mean consensus analyst forecast after the earnings announcement for quarter $t-1$). In subsequent quarters $t+1$ through $t+3$, total earnings news is defined as actual earnings for those quarters less market expectations existing in quarter t. When available, existing analysts' forecasts for the corresponding quarters that exist prior to the earnings guidance in quarter t are used as proxies for market expectations. However, most firms do not have analysts' forecasts beyond quarter $t+1$. Therefore, when analysts' forecasts for future quarters are not available, we use actual earnings realised by the firm in the same fiscal quarter one year earlier.[14]

$\mathrm{PS}^{\mathrm{EA}}$ and PTNews, as defined before, are indicator variables equal to one when the firm reports actual earnings greater than the earnings guidance (or the last available mean consensus analyst forecast for the no-guidance sample) and the first available mean consensus forecast for the quarter t, respectively. The remaining variables in the model are similar indicator variables for the quarter indicated. For example, $\mathrm{PS}^{\mathrm{EA}t+1}$, $\mathrm{PS}^{\mathrm{EA}t+2}$ and $\mathrm{PS}^{\mathrm{EA}t+3}$ are equal to one when the firm reports actual earnings in quarters $t+1$, $t+2$ and $t+3$, respectively, that exceed the most recent mean consensus analyst forecast prior to the earnings announcement for that quarter. Similarly, PTNews^{t+1}, PTNews^{t+1} and PTNews^{t+3} are equal to one when actual earnings in the respective quarters exceed market expectations as of the guidance date in quarter t.

Results from estimating the multi-period regression Equations (2) through (4) are presented in Table 6. The coefficient magnitudes and significance levels for $\mathrm{DOWN}^{\mathrm{Guide}}$, $\mathrm{PS}^{\mathrm{EA}}$ and PTNews can be compared with the one-period model reported in Table 5. As expected, the association between returns and earnings news is strongly positive in every regression, and the magnitude of γ_1 increases as the number of aggregated periods increase, consistent with prior research (Warfield and Wild 1992). Of particular interest in these regressions are the magnitudes of γ_2 through γ_5. The coefficients on GUIDE and $\mathrm{DOWN}^{\mathrm{Guide}}$ are significant in every period, and their magnitudes are similar across regressions. Thus, the returns associated with a firm's providing guidance and, in particular, the disproportionate decrease in market value from providing downward guidance persists up through quarter $t + 3$ and there is virtually no attenuation in this association (change in coefficients across models is not significantly different). This stock price penalty cannot be explained by a decrease in future earnings performance given that future earnings are explicitly included in these models. The association between market value and downward guidance appears to be incremental to any information contained within the guidance about current or future earnings.

In contrast to the persistent magnitude of the coefficients for GUIDE and $\text{DOWN}^{\text{Guide}}$, we find a general decline in coefficient magnitudes for PS^{EA} and PTNews and their future counterparts as we increase the number of periods in the model (from the one-period model in Table 5 to the four-period model in Table 6). For example, the coefficient for PS^{EA} in regression Equation (1) reported in Table 5 is 0.024, suggesting a 2.4% equity premium for meeting analysts' expectations at the earnings announcement, after controlling for total earnings news. This premium tends to decline as future earnings are included in the regression. The only exception is γ_4 in the four-period model relative to the three-period model. A general declining trend for PTNews is also observed and for these variables' future counterparts (coefficients γ_6–γ_9 in Table 6). These results are consistent with the notion that the premium to beating analysts' forecasts (whether it be the first or last forecast for the period) is a rational market response to signals about future earnings performance, and the premium declines as earnings performance is explicitly included in the model.

To provide further evidence on the rationality of the differential market response to downward guidance, we also re-estimate regression Equation (1) using a two-stage Heckman selection model to control for a potential self-selection bias wherein firms who choose to issue guidance may have larger amounts of unfavourable news than other firms. Although researchers have expressed concerns in recent years regarding these types of selection models (e.g. Puhani 2000, Francis and Lennox 2008, Kennedy 2008), the use of such a model increases the comparability of our findings with those of prior research, notably Tucker (2007).

In the first stage, we follow Tucker (2007) in modelling managers' litigation, reputation and earnings-torpedo-related motives for issuing guidance. The following six instrumental variables from Tucker (2007) are utilised: the log of market value of equity, the log of the absolute value of the earnings surprise, the number of quarterly earnings guidelines issued in the previous year, the average number of analysts following the firm, the market-to-book ratio and earnings volatility. We also include three additional instruments. Litigation risk is captured by including an indicator variable equal to one if the firm belongs to a high-litigation-risk industry as defined by Matsumoto (2002). To capture earnings-torpedo-related effects that might motivate managers to warn (Skinner and Sloan 2002), we include stock return volatility during the previous 12 months and the consensus analyst long-term earnings growth forecast.

Similar to Tucker (2007), we interact the inverse Mills ratios from this analysis with GUIDE in our second stage. In untabulated analysis, we find that while this control for self-selection does slightly reduce the magnitude of the results in Table 5, inferences remain unchanged.[15] Thus, our results do not appear to be driven by a self-selection bias that is related to other earning news simultaneously disclosed by guidance firms.

6. Reconciling results with prior research

The evidence in this study indicates that firms realise a stock price penalty from issuing negative quarterly earnings guidance that exceeds the stock price premium from meeting analysts' forecasts, after holding total earnings news constant. Our results do not explain the rationale for the penalty, but they can assist in explaining why firms tend to discontinue providing guidance

Table 6. Results from regression of multiple period returns on aggregated earnings.

Two-period model:

$$\mathrm{CAR}^2 = \gamma_0 + \gamma_1\mathrm{TNews\%}^2 + \gamma_2\mathrm{GUIDE} + \gamma_3\mathrm{DOWN}^{\mathrm{Guide}} + \gamma_4\mathrm{PS}^{\mathrm{EA}} + \gamma_5\mathrm{PTNews} + \gamma_6\mathrm{PS}^{\mathrm{EA}t+1} + \gamma_7\mathrm{PTNews}^{t+1} + \beta_i\sum_{i=1}^{53} QTR + \varepsilon$$

Three-period model:

$$\mathrm{CAR}^3 = \gamma_0 + \gamma_1\mathrm{TNews\%}^3 + \gamma_2\mathrm{GUIDE} + \gamma_3\mathrm{DOWN}^{\mathrm{Guide}} + \gamma_4\mathrm{PS}^{\mathrm{EA}} + \gamma_5\mathrm{PTNews} + \gamma_6\mathrm{PS}^{\mathrm{EA}t+1} + \gamma_7\mathrm{PTNews}^{t+1} + \gamma_8\mathrm{PS}^{\mathrm{EA}t+2} + \gamma_9\mathrm{PTNews}^{t+2} + \beta_i\sum_{i=1}^{53} QTR + \varepsilon$$

Four-period model:

$$\mathrm{CAR}^4 = \gamma_0 + \gamma_1\mathrm{TNews\%}^4 + \gamma_2\mathrm{GUIDE} + \gamma_3\mathrm{DOWN}^{\mathrm{Guide}} + \gamma_4\mathrm{PS}^{\mathrm{EA}} + \gamma_5\mathrm{PTNews} + \gamma_6\mathrm{PS}^{\mathrm{EA}t+1} + \gamma_7\mathrm{PTNews}^{t+1} + \gamma_8\mathrm{PS}^{\mathrm{EA}t+2} + \gamma_9\mathrm{PTNews}^{t+2} + \gamma_{10}\mathrm{PS}^{\mathrm{EA}t+3} + \gamma_{11}\mathrm{PTNews}^{t+3} + \beta_i\sum_{i=1}^{53} QTR + \varepsilon$$

	γ_0	γ_1	γ_2	γ_3	γ_4	γ_5	γ_6	γ_7	γ_8	γ_9	γ_{10}	γ_{11}
Coef.	**− 0.064**	**1.029**	**0.031**	**− 0.099**	**0.018**	**0.077**	**0.094**	−0.003				
(t-stat.)	**(−4.71)**	**(7.02)**	**(4.40)**	**(−12.37)**	**(2.94)**	**(10.46)**	**(13.33)**	(−0.42)				
	Adj. R^2 = 14.5%			N = 13,917								
Coef.	**− 0.113**	**1.837**	**0.028**	**− 0.083**	0.007	**0.058**	**0.051**	**− 0.019**	**0.080**	**0.091**		
(t-stat.)	**(−7.46)**	**(9.91)**	**(3.14)**	**(−8.50)**	(0.92)	**(6.30)**	**(5.82)**	**(−2.02)**	**(10.91)**	**(11.31)**		
	Adj. R^2 = 16.7%			N = 13,436								
Coef.	**− 0.191**	**1.974**	**0.034**	**− 0.088**	**0.019**	**0.040**	0.020	− 0.005	**0.039**	**0.054**	**0.062**	**0.127**
(t-stat.)	**(−10.46)**	**(8.43)**	**(3.14)**	**(−7.50)**	**(2.10)**	**(3.75)**	(1.91)	(− 0.49)	**(4.49)**	**(6.11)**	**(6.69)**	**(13.13)**
	Adj. R^2 = 18.0%			N = 12,903								

Regression variable definitions: CAR^2, CAR^3 and CAR^4 are two-, three- and four-period CARs defined as size-adjusted returns extending from one day after the first consensus analyst forecast available in quarter t after the earnings announcement for quarter $t-1$ to one day following the earnings announcement in quarters $t+1$, $t+2$ and $t+3$, respectively. $\mathrm{TNews\%}^2$ ($\mathrm{TNews\%}^3$) [$\mathrm{TNews\%}^4$] is the sum of total earnings news from quarter $t+1$ ($t+2$) [$t+3$] and the previous quarter(s), deflated by stock price as of the first consensus analyst forecast for quarter t occurring after the earnings announcement for quarter $t-1$. Total earnings news in quarter t is defined as before. Total earnings news in periods $t+1$, $t+2$ and $t+3$ are defined as the difference between actual earnings for that quarter less the market expectations of earnings for the same quarter that exists prior to the earnings guidance for quarter t. When available in quarter t, mean consensus analyst forecasts are used to proxy for market expectations for all future quarters. When analyst forecasts for future periods are not available, market expectations are defined as actual earnings per share in the same quarter one year prior to the relevant period. GUIDE is an indicator variable equal to one if the company issued earnings guidance during the quarter (and zero otherwise). $\mathrm{DOWN}^{\mathrm{Guide}}$ is an indicator variable equal to one when the earnings guidance is less than the most recent mean consensus analyst forecast that exists prior to the guidance, and zero otherwise. $\mathrm{PS}^{\mathrm{EA}}$ is an indicator variable equal to one when actual earnings for quarter t exceeds the earnings guidance for the guidance sample, or the last available consensus analyst forecast for the matched sample, and zero otherwise. $\mathrm{PS}^{\mathrm{EA}t+1}$, $\mathrm{PS}^{\mathrm{EA}t+2}$ and $\mathrm{PS}^{\mathrm{EA}t+3}$ are indicator variables equal to one when actual earnings for the corresponding period exceeds the most recent mean consensus analyst forecast that exists immediately prior to the earnings announcement for the corresponding period. PTNews^{t+1} (PTNews^{t+2}) [PTNews^{t+3}] is an indicator variable equal to one when $\mathrm{TNews\%}^2$ ($\mathrm{TNews\%}^3$) [$\mathrm{TNew\%}^4$] is positive, and zero otherwise.

Coefficient magnitudes are presented in bold when they are statistically significant at the $\alpha = 0.05$ level using a two-tailed test. Standard errors clustered by firm with time period dummy variables (coefficients not reported) are used to control for correlation in the error terms.

during times of poor operating performance (e.g. Chen *et al.* 2007, Cheng *et al.* 2007, Houston *et al.* 2010). In addition, our results are consistent with some prior research on the differential market response to downward guidance (Hutton *et al.* 2003) and the market response to pre-earnings announcement warnings of large negative surprises (Kasznik and Lev 1995). However, our results contrast with research suggesting that the optimal disclosure strategy from a stock price perspective is to ensure a positive surprise at the earnings announcement, even when that means talking analysts' forecasts down. In this section, we attempt to reconcile our results with prior contrasting research by initially estimating the same regression specifications that were implemented in other studies, and then expanding the regressions to examine the incremental significance of $\text{DOWN}^{\text{Guide}}$.

Two archival studies that draw different conclusions from this study are Soffer *et al.* (2000) and Miller (2005). Soffer *et al.* (2000) conclude that the market reacts more strongly to the earnings announcement compared to an earnings preannouncement, which is opposite from what we find for downward guidance observations. Also, Soffer *et al.* conclude that the optimal preannouncement strategy to maximise stock price is to always report a positive earnings surprise. In their study, the sign of the preannouncement surprise is unimportant so long as it does not preclude a firm from reporting a positive surprise at the earnings announcement date.

Miller (2005) concludes that the market reaction to total earnings news is most pronounced when the guidance news and earnings announcement news are of the same sign. This cue consistency theory is not completely consistent with the implications in this study that suggest the key to an optimal disclosure strategy is not the consistency of the earnings surprises but rather, the sign of the earnings guidance.

We use the same terminology employed in Soffer *et al.* (2000) to express their regression specification as follows:

$$\text{CAR}^{\text{PA}-1,\text{EA}+1} = \alpha_0 + \alpha_1\text{TOTNEWS} + \alpha_2\text{NEG}^{\text{EA}} + \alpha_3(\text{TOTNEWS}{*}\text{NEG}^{\text{EA}}) + \varepsilon. \quad (5)$$

The measurement of the variables in Equation (5) is equivalent or very similar to what has already been used in regression Equations (1) through (4) in this study, and we continue to employ the same measurement procedures as before. Any differences in variable measurement between this study and Soffer *et al.* (2000) are specifically delineated. $\text{CAR}^{\text{PA}-1,\text{EA}+1}$ is defined in Soffer *et al.* (2000) as the size-adjusted return extending from one day before the earnings guidance to one day following the official earnings release date. We extend the window for this variable to one day before the first consensus analyst forecast to ensure that all the earnings news is captured by returns. TOTNEWS or total earnings news is measured the same way as TNews% in Equation (1).[16] NEG^{EA} is an indicator variable equal to one when the firm reports a negative surprise at the earnings announcement date and zero otherwise.[17]

Upon initially estimating Equation (5) and comparing our results with the results reported in Soffer *et al.* (2000), we estimate an expanded equation that includes $\text{DOWN}^{\text{Guide}}$ as an additional explanatory variable, which indicates whether or not the earnings guidance during the period is downward (as defined before):

$$\begin{aligned}\text{CAR}^{\text{PA}-1,\text{EA}+1} = {} & \alpha_0 + \alpha_1\text{TOTNEWS} + \alpha_2\text{NEG}^{\text{EA}} + \alpha_3(\text{TOTNEWS}{*}\text{NEG}^{\text{EA}}) \\ & + \alpha_4\text{DOWN}^{\text{Guide}} + \varepsilon.\end{aligned} \quad (6)$$

Similar to Soffer *et al.* (2000) we estimate regression Equation (6) only for the guidance sample.

A similar process is employed to reconcile our results to those reported in Miller (2005). The regression specification employed in Miller (2005) is as follows:

$$\begin{aligned}\text{CAR} = {} & \beta_0 + \beta_1\text{TOTSURP} + \beta_2\text{NEGEPSSURP} + \beta_3\text{TOTSURPSIGN} \\ & + \beta_4(\text{TOTSURPSIGN}*\text{TOTSURP}) + \beta_5\text{NEGEARN} \\ & + \beta_6(\text{NEGEARN}*\text{TOTSURP}) + \beta_7\text{PATHTYPE} \\ & + \beta_8(\text{PATHTYPE}*\text{TOTSURP}) + \varepsilon.\end{aligned} \tag{7}$$

CAR and TOTSURP are defined equivalently as lwCAR and TNews in Equation (1).[18] NEGEPSSURP is defined the same way as NEG^{EA} in Equation (6); specifically, it is an indicator variable equal to one when the firm reports a negative surprise at the earnings announcement date. TOTSURPSIGN is defined equivalently to PTNews, which is an indicator variable equal to one when the firm reports actual earnings in excess of the mean consensus analyst forecast prior to the guidance. NEGEARN is an indicator variable equal to one when the actual earnings are negative and zero otherwise. Finally, PATHTYPE tests the primary hypothesis in Miller (2005) that the market reaction will be more pronounced when the guidance and official earnings news are of the same sign. This indicator variable is equal to one when the signs of the surprises on the two dates are consistent, and zero otherwise.

After estimating the regression in Miller (2005), we expand the equation to include $\text{DOWN}^{\text{Guide}}$ as follows to assess whether or not reporting downward guidance has an incremental effect on stock prices:

$$\begin{aligned}\text{CAR} = {} & \beta_0 + \beta_1\text{TOTSURP} + \beta_2\text{NEGEPSSURP} + \beta_3\text{TOTSURPSIGN} \\ & + \beta_4(\text{TOTSURPSIGN}*\text{TOTSURP}) + \beta_5\text{NEGEARN} \\ & + \beta_6(\text{NEGEARN}*\text{TOTSURP}) + \beta_7\text{PATHTYPE} \\ & + \beta_8(\text{PATHTYPE}*\text{TOTSURP}) + \beta_9\text{DOWN}^{\text{Guide}} + \varepsilon.\end{aligned} \tag{8}$$

The results from this exercise are reported in Table 7. Panel A is related to Soffer *et al.* (2000) and Panel B relates to Miller (2005). The first row of regression results presents what is reported in the original papers. The second row presents the results from estimating the same regression specifications on our sample. As can be seen in Panel A of Table 7, we are able to produce results that are qualitatively similar to what is reported in Soffer *et al.* (2000). The only meaningful difference is that we find a significantly negative coefficient for the slope interaction $\text{TOTNEWS}^*\text{NEG}^{\text{EA}}$; probably because the size of our sample allows for more powerful tests that can detect smaller effects.

In the last column, we examine how the interpretation of the results is affected by the inclusion of $\text{DOWN}^{\text{Guide}}$ in the regression. Consistent with our prior results, we continue to find a negative coefficient for $\text{DOWN}^{\text{Guide}}$ that is strongly significant. We also continue to find a significant coefficient for NEG^{EA}; thus, our results confirm the notion that firms realise more positive returns when they are able to avoid reporting a negative earnings surprise. This result is consistent with what is reported in Tables 5 and 6. However, the significance and magnitude of the $\text{DOWN}^{\text{Guide}}$ coefficient gives rise to a different interpretation of the relative importance of talking down analysts' forecasts in order to report a positive earnings surprise, as the coefficient on $\text{DOWN}^{\text{Guide}}$ is significantly more negative than that of NEG^{EA} (p-value $= 0.001$), suggesting that the stock price effects of reporting a positive earnings surprise are not as large in absolute value and do not completely offset the negative effects of reporting downward earnings guidance.

Table 7: Results from employing regression specifications from prior studies.

Panel A

Regression equation from Soffer *et al.* (2000):

$$CAR^{PA-1,EA+1} = \alpha_0 + \alpha_1 TOTNEWS + \alpha_2 NEG^{EA} + \alpha_3(TOTNEWS * NEG^{EA}) + \varepsilon$$

Expanded equation to include type of news in earnings preannouncement:

$$CAR^{PA-1,EA+1} = \alpha_0 + \alpha_1 TOTNEWS + \alpha_2 NEG^{EA} + \alpha_3(TOTNEWS * NEG^{EA}) + \alpha_4 DOWN^{Guide} + \varepsilon$$

	Coefficient estimates (t-statistics in parentheses)						
	α_0	α_1	α_2	α_3	α_4	Adj. R^2	N
Reduced model as reported in Soffer *et al.* (2000)	−0.016 (−1.95)	**3.250** **(6.57)**	**− 0.070** **(−3.19)**	1.248 (0.95)		21.0%	325
Reduced model current sample	0.015 (1.66)	**5.463** **(11.34)**	**− 0.070** **(−11.40)**	**− 3.635** **(−5.42)**		11.25%	8621
Expanded model	**0.065** **(6.95)**	**3.540** **(8.55)**	**− 0.059** **(−10.15)**	**− 2.597** **(−4.61)**	**− 0.092** **(−19.35)**	15.5%	8621

Panel B

Regression equation from Miller (2005): $CAR = \beta_0 + \beta_1 TOTSURP + \beta_2 NEGEPSSURP + \beta_3 TOTSURPSIGN + \beta_4(TOTSURPSIGN * TOTSURP) + \beta_5 NEGEARN + \beta_6(NEGEARN * TOTSURP) + \beta_7 PATHTYPE + \beta_8(PATHTYPE * TOTSURP) + \varepsilon$

Expanded equation to include type of news in earnings preannouncement: $CAR = \beta_0 + \beta_1 TOTSURP + \beta_2 NEGEPSSURP + \beta_3 TOTSURPSIGN + \beta_4(TOTSURPSIGN * TOTSURP) + \beta_5 NEGEARN + \beta_6(NEGEARN * TOTSURP) + \beta_7 PATHTYPE + \beta_8(PATHTYPE * TOTSURP) + \beta_9 DOWN^{Guide} + \varepsilon$

	Coefficient estimates (p-values in parentheses)										
	β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	β_8	β_9	Adj. R^2	N
Reduced model as reported in Miller (2005)	**− 0.075** **(0.001)**	**6.015** **(0.001)**	0.013 (0.117)	**0.115** **(0.015)**	**− 3.287** **(0.001)**	**− 0.029** **(0.012)**	**− 7.288** **(0.001)**	− 0.008 (0.174)	**1.287** **(0.006)**		33.1%	840
Current sample	**− 0.047** **(0.001)**	**4.744** **(0.001)**	**− 0.018** **(0.009)**	**0.100** **(0.001)**	**2.549** **(0.030)**	**− 0.029** **(0.001)**	**− 4.014** **(0.001)**	0.005 (0.314)	0.137 (0.787)		19.0%	7928
Expanded model	− 0.014 (0.270)	**4.730** **(0.001)**	**− 0.023** **(0.001)**	**0.077** **(0.001)**	**2.699** **(0.020)**	**− 0.028** **(0.001)**	**− 3.868** **(0.001)**	0.000 (0.947)	− 0.262 (0.602)	**− 0.031** **(0.001)**	19.2%	7928

Regression variable definitions from panel A: $CAR^{PA-1,EA+1}$ is the size-adjusted return from one day before the first mean consensus analyst forecast for quarter t to one day following the official earnings announcement for quarter t. TOTNEWS is actual earnings per share for quarter t less the first mean consensus analyst forecast for quarter t, deflated by stock price as of the first consensus analyst forecast for quarter t occurring after the earnings announcement for quarter $t - 1$. NEG^{EA} is an indicator variable equal to one when actual earnings per share are less than the earnings guidance (and zero otherwise). $DOWN^{Guide}$ is an indicator variable equal to one when the earnings guidance is less than the first mean consensus forecast for quarter t.

Regression variable definitions from panel B: CAR is defined the same as $CAR^{PA-1,EA+1}$. TOTSURP is defined the same as TOTNEWS. NEGEPSSURP is defined the same as NEG^{EA}. TOTSURPSIGN is an indicator variable equal to one when TOTNEWS is positive (and zero otherwise). NEGEARN is an indicator variable equal to one when earnings for quarter t are less than zero (and zero otherwise). PATHTYPE is an indicator variable equal to one when the signs of $DOWN^{Guide}$ and NEGEPSSURP are consistent (and zero otherwise).

Coefficient magnitudes are presented in bold when they are statistically significant at the $\alpha = 0.05$ level using a two-tailed test. Standard errors clustered by firm with time period dummy variables (coefficients not reported) are used to control for correlation in the error terms.

The first row of regression results in Panel B presents what was reported in Miller (2005). We are unable to produce an exact replication of Miller (2005). Most importantly, the coefficient on the PATHTYPE*TOTSURP interaction term is not significant for our sample, suggesting that this result is not robust across firms and/or over time. Otherwise, most of the results for our sample are close to what is presented in Miller (2005). Further, the coefficient on $DOWN^{Guide}$ remains strongly significant within this model, providing more evidence of the robustness of our primary findings across regression specifications, and provides a different interpretation from what is presented in Miller (2005) as to the optimal disclosure strategy to maximise stock price.

7. Conclusions and discussion

Prior studies have examined the important issue of the overall market reaction to the combined news disclosed in earnings preannouncements and subsequent official earnings releases. The evidence from this line of literature is not completely consistent. Some studies suggest that warning investors of impending bad news will result in a more negative overall market response even though the total earnings news is the same if there had been no warning (Kasznik and Lev 1995, Libby and Tan 1999). In contrast, more recent research indicates that an optimal disclosure strategy is to guide earnings expectations to ensure a positive surprise at the official earnings release date (Soffer *et al.* 2000, Tan *et al.* 2002, Miller 2005). These latter results suggest that investors and analysts tend to react more strongly to earnings announcements compared to preannouncements, but this notion cannot be neatly reconciled with the literature that consistently shows a substantial market reaction to management earnings guidance, especially when the guidance is negative (Hutton *et al.* 2003). Further, although Caylor *et al.* (2007) do not examine earnings guidance explicitly issued by managers, they find evidence indicating that the optimal disclosure strategy is not always to ensure a positive earnings surprise.

With the development of First Call's *Company Issued Guidance* database, researchers have access to better data to examine the importance of voluntary management disclosures relative to official earnings announcements. Based upon a large sample extracted from this database, we show that controlling for the magnitude of total earnings news, quarterly stock returns are more negative when the firm provides downward earnings guidance during the period relative to a no-guidance control sample. This study is the first to provide large-sample evidence on the net benefits to explicitly guiding earnings expectations down to a beatable level.

We examine whether this net stock price penalty for downward guidance can be explained by future earnings realisations. The inclusion of future earnings in a multiple-period regression framework reveals that the stock price penalty to downward guidance persists over at least three subsequent quarters relative to the guidance quarter, while the premium to meeting analysts' forecasts is attenuated over the same period. This result indicates that the market response to the guidance cannot be explained by differential operating performance over the next three quarters. Using a Heckman two-stage selection model, we also show that this market response to downward guidance is not driven by a self-selection bias. These results go against the conventional wisdom that companies can benefit from warning investors about impending bad news, and that stock price is maximised when managers report a positive earnings surprise even when downward guidance is required to do so.

Consistent with prior research, we observe that most guidance is negative, which begs the question: if downward guidance is overall harmful to firm value after controlling for total earnings news, why do managers provide downward guidance? A potential response is the general trend among companies of discontinuing the practice of providing short-term guidance. A 2007 survey by the National Investor Relations Institute indicates that 51% of its members in that year provided earnings guidance, which is a substantial decline from 77% in 2003. Research has found that company decisions to go silent are associated with negative operating performance (Chen *et al.* 2007, Houston *et al.* 2010). Further, a recent working paper finds that when total earnings news for a period is negative, a greater proportion of it is released through the earnings announcement relative to positive total earnings news (Roychowdhury and Sletten 2010). This evidence suggests that many managers might be aware of the penalty for downward guidance and take actions to avoid it.

Although we are unaware of managers explicitly citing stock price effects of downward guidance as a motive for discontinuing the practice of issuing guidance, it stands to reason that if a stock price penalty exists for downward guidance, then it would serve as an incentive to managers to stop issuing guidance altogether and not only during periods of poor performance. Selectively issuing guidance only when managers have good news would not seem to be a prudent policy, as that would expose the firm to greater liability. When firms do not meet analysts' forecasts and stock price falls precipitously, stockholders are eager to assign blame to managers. Having demonstrated a willingness to provide guidance in the past when analysts' forecasts were too low, managers could be held liable if they stay silent when analysts' forecasts are too high. In contrast, when a firm adopts a 'no guidance' policy, managers are unlikely to be held responsible for what third parties (i.e. analysts) say about the firm. In fact, avoiding litigation is a reason cited by managers as to why they discontinue providing guidance (Morgan 2003). Another potential response as to why most earnings guidance is negative is the possibility that managers believe the conventional wisdom that firms are penalised for not being forthcoming about bad news.

Our results suggest that the market response to negative guidance is not rational. An explanation for the response is beyond the scope of this study, but prior behavioural research provides a possible explanation. Libby and Tan (1999) design an experiment that examines analyst forecast revisions of future earnings under different conditions. One set of analysts are asked to provide a new forecast after an earnings warning and then again after the official earnings release (a sequential condition). Another group of analysts are given the same information from the warning and official earnings release simultaneously (a simultaneous condition) and asked to provide a new forecast. Finally, a third group of analysts provide a new forecast after being informed only about the actual earnings with no warning (a no-warning condition). The authors find that analysts seem to prefer a warning about negative earnings because the revisions for the simultaneous condition were less negative compared to the no-warning condition. However, the sequential condition resulted in the most negative revisions, which suggests that any perceived benefit from warning investors about negative earnings is more than offset by the cognitive process of sequentially receiving an earnings warning followed by an earnings announcement. These results provide a possible explanation for the apparent disconnect between the conventional wisdom that downward guidance might ultimately benefit companies' stock price and actual market behaviour.

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Notes

1. See, for example, Kasznik and Lev (1995), Libby and Tan (1999), Soffer *et al.* (2000), Tan *et al.* (2002) and Miller (2005, 2006).
2. There are many factors involved in a firm's decision to issue guidance beyond the stock price. These include litigation costs (Francis *et al.* 1994, Skinner 1994) and stock option compensation (Noe 1999,

Aboody and Kasznik 2000). However, our research question is focused on the stock price effects of various earnings disclosure strategies.

3. See Skinner (1994), Hutton *et al.* (2003) and Kothari *et al.* (2009). Anecdotally, incidents of a large stock price response to downward earnings guidance are easy to find. On 24 October 2002, after the close of trading, CIGNA announced the company would not meet analysts' expectations due to weakness in one of its major segments. The price of the company's shares fell as much as 45% the following day. On 3 January 2006, prior to the market open, Pilgrim's Pride guided first-quarter earnings lower citing lower sales prices and worse than expected performance in its Mexico operations. Share prices fell that day by more than 20%.
4. In addition to earnings guidance, a sampling of the types of management disclosures that are included in Kasznik and Lev (1995) are sales forecasts, asset write-offs, gains on asset sales, order backlog, stock repurchases, dividends, earnings components, appointments of officers and board members, and capital expenditures.
5. Similar results are documented in Atiase *et al.* (2006).
6. Their sample is restricted to earnings surprises that exceed 1% of stock price.
7. By comparison, previous archival studies on earnings preannouncements typically employ only a few hundred observations or less.
8. Industry is represented as the first two digits of the Global Industry Classification Standard code.
9. We find successful matches for an additional 1410 firm/quarter guidance observations when we eliminate the industry criterion, and an additional 391 observations when we further eliminate the firm size criterion. All inferences in the paper remain unchanged when we use this expanded sample.
10. We do not indicate in the table statistical significance for the median levels; however, unless otherwise indicated, all medians are statistically significant at conventional levels.
11. The median abnormal return surrounding the earnings announcement date for the medium total earnings news group is also not significantly different from zero. All other median levels in the panel are significant at conventional levels.
12. Admittedly, these parameter cut-offs are arbitrary, but they result in fewer deleted observations compared to the no less arbitrary method of deleting observations in the extreme 1 or 5 percentile tails of the distribution, which is a common practice in the literature.
13. We also document an incremental and more pronounced equity premium when firms beat the first mean consensus analyst forecast for the period, which is consistent with Caylor *et al.* (2007), however, this stock price effect does not depend on whether or not the firm provides guidance during the period.
14. As an alternative approach to obtain market expectations when analysts' forecasts are unavailable, actual earnings in previous periods are adjusted by the difference between consensus analysts' forecasts for quarter t that existed immediately prior to the guidance, and the last consensus analyst forecast for quarter $t - 4$ prior to the earnings announcement for quarter $t - 4$. This approach assumes that any forecasted improvement or decline in earnings for the current period relative to a year ago is permanent and the trend will continue for all subsequent quarters. Results from this alternative approach are qualitatively identical to what is reported in Table 6.
15. Specifically, the negative stock price effect of issuing downward guidance is reduced from -9.4 to -6.9%, while the equity premium from meeting analysts' expectations decreases from 2.7 to 2.0%. More importantly, the absolute magnitude of $\beta_2 + \beta_3$ remains significantly greater than that of β_4 (p-value $= 0.001$).
16. Soffer *et al.* (2000) deflate total earnings news by beginning of quarter stock price instead of stock price as of the first consensus analyst forecast for quarter t occurring after the earnings announcement for quarter $t - 1$.
17. Soffer *et al.* (2000) define NEG^{EA} as equal to one when the earnings preannouncement released more than 105% of its positive news or less than 95% of its negative news.
18. Miller (2005) deflates TOTSURP by stock price as of 10 days prior to the guidance date.

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Board reputation attributes and corporate social performance: an empirical investigation of the US Best Corporate Citizens

CHRISTINE A. MALLIN[a]* and GIOVANNA MICHELON[b]

[a]*Birmingham Business School, University House, University of Birmingham, Edgbaston, Birmingham, B15 2TT, UK;* [b]*Department of Economics and Management, University of Padova, Italy*

The aim of the paper is to investigate the relationship between board reputation and corporate social performance. Specifically, we claim that corporate social performance may be a function of board attributes and we investigate the association between board reputation – in terms of board composition, competence, diversity, leadership, structure and links with the external environment – and the social performance of firms, after controlling for other company-specific characteristics. In order to explore such a relationship, we analyse the association between corporate social performance and board reputation of the Business Ethics 100 Best Corporate Citizens over the period 2005–2007. Data on corporate social responsibility are collected from the KLD's SOCRATES database, which is derived from multiple sources and is not dependent upon corporate self-reporting. Data on board reputation are hand-collected from corporate reports and proxy statements. Our empirical evidence shows that the proportions of independent, community influential and female directors are positively associated with corporate social performance, while the presence of a corporate social responsibility (CSR) committee is positively associated with community performance. In contrast, we find that CEO duality and community influential directors with multiple directorships have a negative effect on corporate social performance.

Keywords: board of directors; corporate social performance; stakeholder theory; community influential directors; women on the board

1. Introduction

The recent financial crisis, the collapse of high profile companies and the increasingly stringent stakeholder pressure have increased debate on corporate governance and board responsibility. More emphasis is being placed on the ethical, environmental and social responsibilities of the

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*Corresponding author. Email: c.a.mallin@bham.ac.uk

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firm towards a broad range of stakeholders in order to establish and enhance the firm's legitimacy to operate. According to Neu *et al.* (1998, p. 265), organisational legitimacy improves the inflow of resources necessary for the viability of the company (Pfeffer and Salancik 1978, Neu *et al.* 1998), allows for the avoidance of product boycotts and other disruptive actions (Elsbach 1994) and enhances corporate reputation (de Quevedo-Puente *et al.* 2007).

The aim of the paper is to investigate the relationship between board reputation and corporate social performance amongst the Best US Corporate Citizens. Specifically, we claim that corporate social performance may be a function of board reputation and we classify group the concept of board reputation into several attributes: board composition, competence, diversity, leadership, structure and links with the external environment. We investigate the effects that each of these attributes has on the social performance of firms, after controlling for other company-specific characteristics.

In order to explore such a relationship, we make use of a US-based sample of companies considered the Best Corporate Citizens over the period 2005–2007. We analyse the association between corporate social performance and board reputation of the Business Ethics 100 Best Corporate Citizens. This data-set has the advantage of providing us with a multidimensional measure of each firm's social performance. Data on corporate social responsibility are collected from the KLD's SOCRATES database, which is derived from multiple sources and is not dependent upon corporate self-reporting. Data on board reputation are hand-collected from corporate reports and proxy statements. We employ various measures to proxy for board reputation: the proportion of independent directors, the proportion of community influential directors, the proportion of women, CEO duality, the presence of a corporate social responsibility (CSR) committee and relational capital (multiple directorates).

We find that board reputation is positively associated with the social performance of the 100 Best Corporate Citizens. Our empirical evidence shows that (i) the proportion of independent directors is positively associated with corporate social performance and environmental performance; (ii) the proportion of community influential directors is positively associated with corporate social performance, community performance and environmental performance; (iii) the proportion of women directors is positively related also with employee relations and human rights performance; (iv) the presence of a CSR committee is positively associated with community performance and human rights performance. Moreover, we provide empirical support for the hypothesis that CEO duality is detrimental to corporate social performance, as indeed are directors with multiple directorships.

This paper makes several contributions. First of all, it explores the relationship between board reputation attributes and corporate social performance, which to the best of our knowledge has not been studied yet in the literature. Second, we provide theoretical and empirical evidence that the effect of board attributes on corporate social performance is depicted more completely when looking at the specific competences of directors, as in the case of community influential directors. Thus traditional proxies for board composition are not a good prediction of the service role of the board in terms of legitimacy and reputation.

The paper is structured as follows. The next section presents the theoretical framework. The development of hypotheses is presented in Section 3. Section 4 describes the research methodology, followed by discussion of the results in Section 5. Concluding remarks are presented in the final section.

2. Theoretical framework

The main question we try to answer in this paper is which characteristics and attributes of the board of directors are related to the corporate social performance of companies. In order to discuss the role of the board of directors with regard to corporate social performance, we will refer to resource dependence theory (Pfeffer and Salancik 1978), while we will rely on legitimacy theory to discuss the theoretical underpinnings of such a relationship (Dowling and Pfeffer 1975).

The board of directors is the 'apex of the decision-making process' (Kassinis and Vafeas 2002, p. 400) and they are ultimately responsible for corporate social strategy, whether this strategy is 'proactively pursued or passively rubber-stamped' (p. 400). According to Hillman and Dalziel (2003), the board of directors plays two different functions: monitoring (control role) and provision of resources (service role). The monitoring function has been mainly analysed following agency theory (Jensen and Meckling 1976, Fama and Jensen 1983), according to which directors are responsible for monitoring managers on behalf of shareholders, given the potential for conflicts of interest arising with the separation of ownership and control (Berle and Means 1932). On the other hand, the focus on the service role of boards is the perspective adopted in the resource dependence (Pfeffer 1972, Pfeffer and Salancik 1978, Hillman *et al.* 2000) and stakeholders' research (Johnson and Greening 1999, Luoma and Goodstein 1999, Hillman and Keim 2001, Huse 2003).

Indeed, various authors advocate a broadening of the corporate governance agenda to encompass a stakeholder and legitimacy perspective (Tirole 2001, Huse 2003, OECD 2004, Webb 2004, Aguilera *et al.* 2006, Deakin and Whittaker 2007, Brennan and Solomon 2008). Following this perspective, the board of directors can be seen a mechanism of legitimacy and reputation, as its role is to ensure that the company is managed efficiently, top management has oversight and stakeholders' interests are taken into consideration at the highest levels of decision making (Michelon and Parbonetti 2010).

According to resource dependence theory, boards consist of both human capital (experience, expertise and reputation) and relational capital (network of ties to other firms and external contingencies) (Hillman and Dalziel 2003, p. 383), thus assuring the management of external dependencies and the provision of important external resources (Hillman *et al.* 2001). Directors are seen not only as keepers of shareholders' fiduciary duties, but also as able to enhance the firm's reputation, by establishing contacts with the external environment and providing top management with insightful advice as to what stakeholders expect from the company. Markarian and Parbonetti (2007, p. 1225) in examining board of director composition, assert that boards perform different tasks at the same time and that, within the board, each director plays a specific role consistent with their own skills, competencies, professional expertise and links with the external environment that produces 'a mosaic of decision making structures and subsequent firm behaviour'.

Following Zahra and Pearce (1989, p. 297), in this paper we assume that corporate boards act as 'boundary spanners' and perform many roles at the same time, providing four types of benefits to the firm: advice and counselling (Mintzberg 1983, Lorsch and MacIver 1989); legitimacy (Selznick 1949); channels for communicating information between external organisations and the company (Hillman *et al.* 1999) and preferential access to commitments or support from important stakeholders in the company's environment (Hillman *et al.* 2001). Thus, directors may do more than reduce uncertainty (Hillman *et al.* 2000), as they bring resources and legitimacy to the company (Gales and Kesener 1994). Within this framework, the reputation of the directors in the community and among stakeholders enables the company to carry on its business and actions, mobilise external support and resources, and enhance organisational legitimacy (Provan 1980, Deephouse 2000).

Organisational legitimacy has been discussed for some time in the academic literature. Dowling and Pfeffer (1975, p. 122) suggest:

> organisations seek to establish congruence between the societal values associated with or implied by their activities and the norms of acceptable behaviour in the larger social system of which they are a part. Insofar as these two value systems are congruent we can speak of organisational legitimacy.

Corporate social responsibility has been addressed in the literature (e.g. Husted and Allen 2000) as a strategy that helps companies in addressing societal concerns about corporate behaviour and thus is able to enhance organisational legitimacy. According to de Quevedo-Puente *et al.* (2007, p. 66) corporate social performance describes 'the degree of legitimacy of the firm's behaviour by the standard of its institutional context', so that a firm is behaving legitimately when its actions are perceived as congruent with society's expectations (Suchman 1995) on the social, environmental and economic impact of the firm's activities. According to Unerman and Bennett (2004, p. 685), 'good corporate governance and accountability should focus on addressing these social, environmental, economic and ethical expectations'.

As firms operate in a constantly changing environment, they must show that they operate within the bounds, values and norms of the society (Brown and Deegan 1998). By legitimacy, that is, the accumulation of similar social performances over time (de Quevedo-Puente *et al.* 2007), the firm is able to consolidate its corporate reputation (Fombrun and Rindova 1994, Rao 1994).

Corporate social performance has been widely discussed in the literature (see, e.g. Carroll 1979, 1991, Wartick and Cochran 1985, Clarkson 1995) as being a multidimensional concept (Johnson and Greening 1999), associated with corporate legitimacy (de Quevedo-Puente *et al.* 2007) and built on a set of principles, processes and policies (Wood 1991).

The effects of board's characteristics on social performance, defined as the outcome of the firm's social strategy (Husted and Allen 2000), will be studied with reference to the various roles played by the board and the directors (Zahra and Pearce 1989), considering that, by establishing external ties with stakeholders and the wider society, directors are able to attract and retain precious resources to the firm's survival and thus enhance the organisational legitimacy (Zahra and Pearce 1989, p. 297).

Based on the above considerations and given the lack of significant board variables in social performance studies, our objective is to investigate whether board reputation has an effect on corporate social performance.

3. Development of hypotheses

Based on the idea that corporate governance encompasses all 'the interests that affect the viability, competence and moral character of an enterprise' (Selznick 1992, p. 290, see also Worthy and Neuschel 1983, Haniffa and Cooke 2005) and that board reputation consists of both human capital, in terms of experience, expertise, leadership, and of relational capital, in terms of ties with external contingencies (Hillman and Dalziel 2003), we analyse the impact of board composition, competence, diversity, leadership, structure and links with the external environment on corporate social performance.

Board composition – independent directors

According to the resource dependence framework (Pfeffer and Salancik 1978), independent directors attract valuable resources vital to the company's viability by establishing external links with stakeholders and other organisations and they enhance the reputation of the firm (Certo *et al.* 2001). The presence of independent directors on the board should increase the board's objectivity and its ability to represent multiple points of view of the firm's role in the environment and among stakeholders (Haniffa and Cooke 2005). Moreover, according to Johnson and Greening (1999, p. 569), by representing various constituents and being knowledgeable about the critical contingencies facing firms, they 'may be more inclined to comply with environmental standards to avoid penalties, fines and negative media exposure and a subsequent loss of reputation'. In this sense, they 'reflect changing societal values in shaping corporate identity because boards lack requisite power to bring about desired changes in the role of the corporation' (Zahra and Pearce 1989, p. 304).

Wang and Dewhirst (1992) find that outside directors are likely to have a stakeholder orientation and are conscious of the expectations of the different constituencies of the firm. Johnson and Greening (1999) find empirical support for their hypothesis that outside directors' representation is positively associated with corporate social performance. The theoretical argument behind these findings is that, by being more dedicated to stakeholders' expectations, independent directors will increase their own prestige and role in society and thus they will be more likely to encourage the company to undertake CSR activities.

If independent directors are likely to respect the stakeholder obligations of the firm, they are more likely to be committed to stakeholder responsibility because in this way they increase their prestige and role in society (Zahra and Stanton 1988, Haniffa and Cooke 2005). Hence, we present our first research hypothesis, in alternative form:

> H1: Corporate social performance is positively associated with the proportion of independent directors.

3.1. *Board competence – community influential directors*

Previous research on corporate governance and social performance has mainly concentrated on the role played by outside (independent) directors (see, e.g. Johnson and Greening 1999).

Following Baysinger and Hoskisson (1990) and Markarian and Parbonetti (2007), non-executive directors are not homogeneous in terms of skills, competencies, expertise and networks with the external environment. We argue that the specific and unique individual competencies of board directors contribute differently to the board process and priorities, thus motivating management to adopt specific strategies and actions (Goodstein and Boeker 1991). In order to understand the impact that diversity in terms of competencies and backgrounds of directors has on social performance, we concentrate on community influential directors (Hillman *et al.* 2000, Michelon and Parbonetti 2010).

Community influential directors (hereafter 'community influentials') typically are 'directors with experience and linkages relevant to the firm's environment beyond competitor firms and suppliers. Community influentials include directors who possess knowledge about or influence over important non-business organisations' (Hillman *et al.* 2000, p. 241).[1] They are mainly political and religious leaders, university faculty and members of social or community organisations, including military officers (Baysinger and Zardkoohi 1986, Hillman *et al.* 2000). By supplying the firm with linkages to society beyond the competitive context, they bring experience and connection to community groups and organisations (Baron 1995), like societal movements and non-profit organisations. According to Hillman *et al.* (2000, p. 242), community influentials 'provide valuable non-business perspectives on proposed actions and strategies'. In this sense, their competence, expertise and influence on societal constituencies help the firm in avoiding strategic choices and actions against the interests of such constituencies and promoting socially responsible actions.

The presence of community influentials on the board helps in obtaining commitments or support from important stakeholders and, by establishing these relationships with stakeholder groups, they provide legitimacy to the company. According to Kassinis and Vafeas (2002, p. 401), community influentials are 'less likely to tolerate environmental irresponsibility because their interests are more closely aligned with the interests of the community at large'. Since they provide the board with better knowledge about stakeholders' needs and expectations, they enhance the board awareness about stakeholders' expectations and ensure that their interests are taken into account during corporate decision making (Selznick 1992). As a consequence, they might promote corporate social performance in order to ensure congruence between the firm's decisions and societal values. This leads us to the formulation of the second hypothesis, in alternative form:

H2: Corporate social performance is positively associated with the proportion of community influentials.

3.2. *Board diversity – women on the board*

According to Coffey and Wang (1998), board diversity is defined as variation among its members.[2] The relevance of female presence on the board is stressed by Hillman *et al.* (2002) and more recently by Adams and Ferreira (2009), according to whom they are increasingly being appointed to corporate boards. According to the literature on gender-based differences, women and men are different in the way they play their leadership role: while men are characterised mainly to agentic[3] attributes (Eagly *et al.* 2003), women are more ascribed to communal characteristics. Communal characteristics are concerned primarily with the welfare of other people, helpfulness, kindness, sympathy, sensitivity, nurturing and gentleness. According to Nielsen and Huse (2010) such elements are translated in working situations into accepting others' positions, supporting and soothing others and contributing to relational and interpersonal problems. Moreover, research has found evidence that female directors are more likely to be cooperative and collaborative and they are more oriented towards improving and enhancing the others' self-worth (Eagly *et al.* 2003). According to Siciliano (1996), board gender diversity improves organisational performance because it provides new insights and perspectives. Bilimoria (2000, p. 27) suggests that women are valued as board members for their ability to 'provide strategic input and generate productive discourse'.

Such abilities, combined with the communal characteristics predominant in female directors, are more likely to lead to the women's active involvement in issues of a strategic nature that concern the firm and its stakeholders. Thus 'women may be particularly sensitive to – and may exercise influence on – decisions pertaining to certain organisational practices, such as corporate social responsibility and environmental politics' (Nielsen and Huse 2010, p. 138). This leads us to the formulation of the third hypothesis, in alternative form:

H3: Corporate social performance is positively associated with the proportion of women directors.

3.3. *Board leadership – CEO duality*

CEO duality occurs when one individual serves as both chairman of the board of directors and chief executive officer. Best practice in corporate governance recommends the separation of the role of the chairman from that of the CEO (OECD 2004), in order to ensure a frank and honest discussion of the performance of the firm (Carver 1990). According to Fama and Jensen (1983, p. 314) CEO duality 'signals the absence of separation between decision control and decision management'. Forker (1992, p. 117) adds that 'a dominant personality commanding a company may be detrimental to the interest of shareholders'. Roberts *et al.* (2005) assert that CEO duality constrains board independence, as combining the role of CEO and chairman compromises the system of checks and balances and represents a conflict of interests, thus reducing the overall accountability of the firm. Thus, based on the agency arguments of Forker (1992) and Roberts *et al.* (2005), CEO duality reduces the overall legitimacy of the company in front of stakeholders.

In contrast to agency theory, organisation theory supports the idea that strong leadership could be interpreted as a characteristic that brings legitimacy, as it sends a signal to stakeholders that the firm has a clear direction (Salancik and Meindl 1984) and that 'someone is in charge and that the fate of the organisation depends on that person' (Pfeffer and Salancik 1978, p. 263). Thus, CEO duality could help a firm maintaining its relationships with stakeholders by invoking a sense of managerial efficacy because 'the consolidation of the two most senior management positions establishes a unity of command at the top of the firm, with unambiguous leadership clarifying decision-making authority and sending reassuring signals to stakeholders' (Finkelstein and D'Aveni 1994, p. 1080).

Given the two contrasting perspectives, we formulate the CEO duality hypothesis in the null form, with two competing alternative hypotheses:

> H4: Corporate social performance is not associated with CEO duality.

The alternative hypothesis of a negative association is based on agency theory, while the alternative hypothesis of a positive association is based on organisation theory.

3.4. *Board structure – presence of a corporate social responsibility (CSR) committee*

Board reputation is not just a function of the composition of the board as a whole, but it also depends on the structure and composition of its subcommittees (Xie *et al.* 2003). According to Zahra and Pearce (1989), the firm's board structure affects the directors' commitment and involvement in shaping the goals and strategy of the firm, because it defines the internal organisation and division of tasks among the board's committees. Furthermore, most important board decisions are taken at a committee level (Kesner 1988).

A firm actively engaging with stakeholders can undertake various decisions and actions at board level in order to manage social responsibility, sustainability or ethical issues. In particular, the presence of a CSR committee,[4] or of a director in charge of such issues, indicates an active strategic posture (Ullman 1985) with regards to stakeholder relationships.

Such a committee is involved in the stakeholder engagement process and in the way the firm turns social strategy into action. The presence of a CSR committee can be interpreted as a signal that the firm sends to stakeholders in order to show its commitment and involvement in CSR (Lam and Li 2007). Post *et al.* (2002) assert that a CSR committee is responsible for reviewing policies and conduct with respect to the firm's principles and commitment to ethical and social responsibility issues. Thus the presence of a CSR committee should reveal the firm's willingness to improve its corporate behaviour to meet stakeholders' expectations. Hence, we hypothesise in alternative form:

> H5: Corporate social performance is positively associated with the presence of a CSR committee.

3.5. *Board relational capital – other directorates*

According to resource dependence theory, board relational capital refers to the actual and potential resources embedded within, available through and derived from the network of relationships possessed by each director (Hillman and Dalziel 2003). In order to understand whether the board's relational capital helps in the provision of both advice and counselling, and reputation, we will refer to the board's directorate ties to external organisations.

Pfeffer and Salancik (1978) state that prestigious organisations represented on the board provide assurance to external stakeholders of the value and worth of the firm, as the firm's reputation is affected not just by who serves on the board, but also to whom the firm is linked

(Bazerman and Schoorman 1983). In this vein, directorate ties may help the firm in attracting critical resources, improving corporate reputation and thus ensuring improved performance.

Previous research found that boards having ties with strategically related organisations are able to provide better strategic guidelines and thus improve firm performance (Westphal 1999, Carpenter and Westphal 2001). Moreover, empirical studies show that boards with great prestige experience less underpricing during an IPO (Certo *et al.* 2001, Kassinis and Vafeas 2002).

Nevertheless, recent discussion (Di Pietra *et al.* 2008) suggests that independent directors may not properly fulfil their functions if they serve on too many boards, as they cannot adequately comply with all their duties. Directors with too many appointments would not be able to provide enough and adequate attention not only to monitor and evaluate management's behaviour, but also to advise and counsel the firm, attract critical resource and increase the firm's reputation.

Given the opposing views on the effects of multiple directorships on board performance, we state our last research hypothesis in null form, with two competing alternative hypotheses:

> H6: Corporate social performance is not associated with the board's relational capital.

The alternative hypothesis of a positive association is based on enhanced reputation, while the alternative hypothesis of a negative association is based on perceived inadequacy of commitment.

4. Research method

4.1. *Sample*

The initial sample for this study consists of the 100 companies listed in the Business Ethics 100 Best Corporate Citizens for the years 2005, 2006 and 2007. The rank is built on the KLD overall social performance rating obtained as the average of the ratings in seven corporate social performance areas: Community, Corporate Governance, Diversity, Employee Relations, Environment, Human Rights, and Product Quality and Safety.[5]

Given that some companies were listed for more than one year in succession whilst others were listed for only one year and that we lost some observations because of lack of data, the total number of observations is 278 and the total number of companies is 176.[6] For each company and year, archival data about board reputation and CSR performance are collected as follows.

4.2. *Measures of corporate social performance*

Data on corporate social performance are collected from the KLD's SOCRATES database, which is a comprehensive research database measuring the social performance of corporations. The web-based database[7] contains social and environmental ratings indicators on the Business Ethics 100 Best Corporate Citizens for the years 2005, 2006 and 2007.

Companies are rated in seven corporate social performance areas: Community, Corporate Governance, Diversity, Employee Relations, Environment, Human Rights, and Product Quality and Safety. For each area, KLD analysts assign 'strengths' and 'concerns' on a 5-point scale. Each area score is then determined by subtracting the concerns scores from the strengths scores. Data are collected in a disciplined process from a wide variety of company, government, and non-government organisations and media sources. Once the information is collected, KLD rates the social performance of companies using a proprietary framework of positive and negative indicators.

KLD data have been extensively used in the management literature on corporate social and environmental performance (see, e.g. Waddock and Graves 1997, Johnson and Greening 1999, Hillman and Keim 2001, David *et al.* 2007) as well as recent social and environmental accounting research (see, e.g. Cho *et al.* 2006, Cho and Patten 2007).

Given the multidimensionality of the concept of corporate social performance, we make use of several measures based on KLD's data: community performance (*comm*), employee relations performance (*er*), environmental performance (*env*), human rights performance (*hr*) and product quality performance (*pr*) ratings. We exclude, on the grounds of potential endogeneity problems, both the KLD ratings regarding the firm's governance and diversity.

Moreover, we employ an overall corporate social performance (*csp*) rating, determined as the average of the ratings obtained in the community, employee relations, environment, human rights and product quality areas.

4.3. *Governance-related variables*

Data on board composition are collected from the firms' annual reports and proxy statements. For each company it was possible to find the name and the type of directors (i.e. executive or independent non-executive director), a description of their role within the board (i.e. membership in a committee) and, in general, a brief biography. The board composition (*prind*) is measured by the proportion of independent directors and the board competence is measured by the proportion of community influentials (*pci*). Community influentials are identified using the brief biographical note that is reported in the proxy statement. Community influentials are classified following Hillman *et al.* (2000): academicians, politicians (including retired politicians), military officers (including retired military officers) and members or directors of social/non-profit organisations (including members of clergy and religious leaders). We measure board diversity as the proportion of women sitting on the board (*pw*). The presence of CEO duality (*dual*) is measured by a dummy variable that takes the value of 1 if the CEO is also the chairman of the board and 0 otherwise. The board structure is measured as a dummy variable equal to 1 if the company has identified a director in charge of social responsibility issues or when boards have a committee in charge of CSR/ethics/sustainability matters, 0 otherwise (*csr_board*). We employ two measures of relational capital. Following Koenig and Gogel (1981), we use the average number of directorships held by non-executive directors (*ratio_neddir*). We also measure relational capital by considering the average number of directorships held by community influentials (*ratio_cidir*).

Table 1 summarises the research hypotheses and the measurement of independent variables.

4.4. *Control variables*

We select control variables on the basis of prior studies on governance and corporate performance. First of all, we consider other board variables that may have an impact on corporate social performance. Following Lipton and Lorsch (1992) and Jensen (1993), we control for board size (*bsize*).

We select accounting performance, size and industry as control variables based on prior studies (Ullman 1985, Johnson and Greening 1999, McWilliams and Siegel 2000, Al-Tuwaijri *et al.* 2003, Brammer *et al.* 2006) investigating the determinants of social performance.

Following Ullman (1985), we assume financial performance influences the financial capability to undertake costly programmes related to social demands. We measure financial performance (*roe*) as the return on equity.

Table 1. Research hypotheses.

Variable of interest		Proxy	Measure	Expected sign	Variable
Board composition	*H1*	Role of independent	Proportion of independent directors	+	*prind*
Board competence	*H2*	Role of community influential	Proportion of community influentials	+	*pci*
Board diversity	*H3*	Role of female directors	Proportion of women directors	+	*pw*
Board leadership	*H4*	CEO duality	Dummy = 1 if CEO is also chairman	+/ −	*dual*
Board structure	*H5*	CSR committee or director in charge of CSR issues	Dummy = 1 if there is a CSR committee or a director in charge of CSR issues	+	*csr_board*
Board relational capital	*H6*	Links with the external environment	No. of directorships of NED/ no. of NED	+/ −	*ratio_neddir*
			No. of directorships of CI/no. of CI profit organisation	+/ −	*ratio_cidir*

According to Burke *et al.* (1986), as firms grow they are more likely to adopt CSR principles because of the increased pressures the firms experience from various stakeholders. We measure size (*size*) as the natural logarithm of total sales.

The nature of a company's industry has been identified as a factor potentially driving corporate social performance. For example, companies whose economic activities modify the environment, such as natural resources companies (mining, forestry, oil and gas, etc.), are clearly more closely monitored for environmental performance than companies in other industries (Dierkes and Preston 1977) while consumer-oriented companies may exhibit greater concern about demonstrating their social involvement to the community, since it is likely to affect the corporate reputation and therefore influence sales (Cowen *et al.* 1987). Companies in the sample belong to nine industries (basic industries, cyclical consumer goods, non-cyclical consumer goods, cyclical services, non-cyclical services, financial, general industrial, information technology, utilities), thus we employ eight dummies.

4.5. *Data analysis*

We consider panel data techniques to be the most suitable for testing our hypotheses. Given that we find cross-section heteroscedasticity, the fixed effects models with cross-section heteroscedasticity cannot be efficiently estimated with OLS. Thus, we specify the following panel corrected standard error model (Wooldridge 2002):

$$\begin{aligned} csp_{it} &= \alpha_1 prind_{it} + \alpha_2 pci_{it} + \alpha_3 pw_{it} + \alpha_4 dual_{it} + \alpha_5 csr\_board_{it} + \alpha_6 ratio\_dir_{it} \\ &\quad + \alpha_7 bsize_{it} + \alpha_8 roe_{it} + \alpha_9 size_{it} + \alpha_{10n} industry_{nit} + \varepsilon_{it} \end{aligned} \tag{1}$$

where:

csp	measure of corporate social performance; it refers to the KLD overall and components ratings (*csp*, *comm*, *er*, *env*, *hr*, *pr*)
prind	board composition; proportion of independent directors

pci	board competence; proportion of community influentials
dual	board leadership; dummy variable equal to 1 if CEO is also chairman, 0 otherwise
csr_board	board structure; dummy variable equal to 1 if the company has identified a director in charge of social responsibility issues or when boards have a committee in charge of CSR/ethics/sustainability matters, 0 otherwise
ratio_dir	relational capital; we employ two measures: average number of directorships held by non-executive directors (*ratio_neddir*) or by community influentials (*ratio_cidir*)
pw	board diversity; proportion of female directors
bsize	board size; number of directors sitting on the board
roe	profitability; return on equity
size	company's size; natural logarithm of total sales
$industry_n$	industry dummies (basic industries, cyclical consumer goods, non-cyclical consumer goods, cyclical services, financial, general industrial, information technology, utilities).

5. Empirical results

5.1. *Descriptive statistics and correlation analysis*

Table 2 shows the social performance ratings of the companies in the sample. The overall social performance score (*csp*) takes into account all strengths and weaknesses of each component considered. The mean is 0.771 and the standard deviation is 0.455. On average, companies seem to perform better with issues involving community relations (the mean for *comm* is 1.194 and the maximum is almost 5.0) and employee relations (the mean for *er* is 1.013 and the maximum is 4.661). Major concerns can be identified in issues regarding human rights (the mean for *hr* is 0.166 and the minimum is −4.289) and product quality and safety (the mean for *pr* is 0.529 and the minimum is −2.921). From the standard deviation data, we can also say that there seems to be great variation among companies in the sample about how they deal with the different CSR areas. The community and environmental issues present the largest variance. On the other side, human rights (*hr*) and product quality and safety (*pr*) issues seem to be more uniformly managed by companies in the sample. Over the three years the social performance of companies seems to improve in all areas, except for human rights (*hr*) and product quality and safety (*pr*), which show a decrease in year 2006.

Table 3 provides descriptive statistics for the independent variables. During the three-year period, the mean (median) proportion of independent directors (*prind*) is 78.2% (81.8%), the mean (median) proportion of community influentials (*pci*) is equal to 24.4% (22.2%), indicating that almost 1 in every 4 directors is a community influential. The minimum of *pci* is 0 and the maximum is 77.8%. Women directors (*pw*) represent on average 15% of board members (median is equal to 14.8%). Only in one case is the board made up of a majority of women directors (Student Loan Corporation in 2006). CEO duality (*dual*) is quite a common practice given that during the three years on average 65.8% of companies have the CEO who is also the chairman of the board of directors. In 56.7% of cases, the companies have a CSR or ethics committee (*csr_board*), it being more common in 2006 (80% of companies) rather than in 2005 (37.6%) or in 2007 (51.7%). On average, non-executives have 3.081 directorships in other companies (median value for *ratio_neddir* is 2.778), while community influentials seem to be slightly busier with a mean of 3.675 directorships (median value for *ratio_cidir* is 3.5).

Descriptive statistics for the control variables are reported in Table 4. On average, boards are made up of 10 members (*bsize*), the median value is 11 and the maximum value is 28. Companies

Table 2. Descriptive statistics for the dependent variables.

		Mean	SD	Min	p25	p50	p75	Max
3 years	*csp*	0.771	0.455	−0.488	0.479	0.711	1.030	2.366
(*n* = 278)	*comm*	1.194	1.441	−1.798	0.036	1.015	2.065	4.993
	er	1.013	1.122	−1.462	0.161	1.030	1.804	4.661
	env	0.964	1.142	−1.219	0.157	0.543	1.535	4.748
	hr	0.155	0.823	−4.289	0.339	0.409	0.433	3.128
	pr	0.529	0.799	−2.921	0.444	0.537	0.981	2.773
2005	*csp*	0.618	0.174	0.434	0.482	0.581	0.689	1.126
(*n* = 93)	*comm*	0.981	1.640	−1.798	−0.240	−0.240	1.318	4.993
	er	0.781	1.175	−0.974	0.135	1.243	1.243	3.460
	env	0.565	0.995	−1.198	0.157	0.157	0.157	4.223
	hr	0.190	0.755	−2.450	0.339	0.339	0.339	3.128
	pr	0.567	0.715	−1.885	0.444	0.444	0.444	2.773
2006	*csp*	0.753	0.264	0.472	0.543	0.698	0.818	1.775
(*n* = 96)	*comm*	1.400	1.347	−0.950	0.558	1.060	2.567	4.080
	er	1.107	1.026	−1.141	0.161	1.030	1.898	4.069
	env	1.028	1.079	−1.219	0.158	0.617	1.535	4.748
	hr	0.089	0.968	−4.289	0.433	0.433	0.433	2.794
	pr	0.468	0.766	−1.240	0.093	0.537	0.981	2.314
2007	*csp*	0.785	0.303	0.490	0.583	0.659	0.856	2.148
(*n* = 89)	*comm*	1.193	1.291	−0.944	0.525	1.015	1.994	4.443
	er	1.154	1.139	−1.462	0.579	0.987	1.804	4.661
	env	1.312	1.231	−0.302	0.120	0.965	2.233	4.346
	hr	0.191	0.720	−2.014	0.409	0.409	0.409	1.621
	pr	0.556	0.914	−2.921	0.124	0.559	0.994	2.299

csp: overall social performance; *comm*: community performance; *er*: employee relations performance; *env*: environmental performance; *hr*: human rights performance; *pr*: product quality and safety performance.

in the sample present on average a *roe* equal to almost 20% and *size* is, on average, about $11,700,000 net sales.

Table 5 shows the Pearson's correlation matrix. The overall social performance score (*csp*) is significantly and positively correlated to the proportion of community influentials (*pci*), the proportion of women (*pw*), the presence of a CSR committee (*csr_board*), the number of directorships of the independent directors (*ratio_neddir*) and it is negatively correlated to CEO duality (*dual*).

The correlation analysis also shows significant pairwise correlations among the independent variables. In order to test whether relevant multi-collinearity can affect the results, we performed the Variance Inflation Factor (VIF) test. The largest value among all the independent variables is often used as an indicator of the severity of multi-collinearity (Neter *et al.* 1996). A maximum VIF value in excess of 10 is frequently taken as an indication that multi-collinearity may be unduly influencing the least squares estimate. In our case, the largest VIF is equal to 2.29, so multi-collinearity among the predictor variables is not a problem.

5.2. *Multivariate results*

Table 6 provides the results for the multivariate regression model. Models 1–6 depict the relationships between our variables of interest and the six measures of corporate social performance employed in the study, respectively: the overall social performance (*csp*) and its constituent components: community performance (*comm*), employee relations (*er*), environmental performance (*env*), human rights (*hr*) and product quality and safety (*pr*).[8]

Table 3. Descriptive statistics for the independent variables.

		Mean	SD	Min	p25	p50	p75	Max
3 years	*prind*	0.782	0.115	0.227	0.727	0.818	0.857	0.938
($n = 278$)	*pci*	0.244	0.184	0.000	0.100	0.222	0.364	0.778
	pw	0.155	0.105	0.000	0.091	0.154	0.200	0.625
	dual	0.658	0.475	0.000	0.000	1.000	1.000	1.000
	csr_board	0.567	0.491	0.000	0.000	0.000	1.000	1.000
	ratio_neddir	3.081	1.405	0.556	2.000	2.778	3.909	9.357
	ratio_cidir	3.675	2.016	0.000	2.000	3.500	5.000	12.000
2005	*prind*	0.787	0.103	0.500	0.727	0.818	0.875	0.929
($n = 93$)	*pci*	0.264	0.195	0.000	0.111	0.250	0.364	0.667
	pw	0.141	0.116	0.000	0.077	0.125	0.182	0.500
	dual	0.602	0.492	0.000	0.000	1.000	1.000	1.000
	csr_board	0.376	0.487	0.000	0.000	0.000	1.000	1.000
	ratio_neddir	2.323	1.062	0.833	1.571	2.111	2.700	6.143
	ratio_cidir	3.025	1.838	0.000	1.708	2.750	4.000	9.500
2006	*prind*	0.776	0.111	0.364	0.714	0.800	0.852	0.938
($n = 96$)	*pci*	0.213	0.169	0.000	0.077	0.200	0.345	0.571
	pw	0.172	0.098	0.000	0.111	0.154	0.207	0.625
	dual	0.708	0.457	0.000	0.000	1.000	1.000	1.000
	csr_board	0.800	0.402	0.000	1.000	1.000	1.000	1.000
	ratio_neddir	3.868	1.337	1.444	2.826	3.739	4.571	9.357
	ratio_cidir	4.537	2.082	1.000	3.000	4.400	5.500	12.000
2007	*prind*	0.785	0.130	0.227	0.750	0.818	0.857	0.923
($n = 89$)	*pci*	0.257	0.185	0.000	0.111	0.200	0.400	0.778
	pw	0.149	0.099	0.000	0.091	0.154	0.200	0.400
	dual	0.663	0.475	0.000	0.000	1.000	1.000	1.000
	csr_board	0.517	0.503	0.000	0.000	1.000	1.000	1.000
	ratio_neddir	3.024	1.350	0.556	2.000	2.778	3.833	7.091
	ratio_cidir	3.514	1.852	0.000	2.000	3.450	5.000	8.286

prind: proportion of independent directors; *pci*: proportion of community influential directors; *pw*: proportion of women directors; *dual*: dummy variable equal to 1 if CEO is also chairman, 0 otherwise; *csr_board*: dummy variable equal to 1 if company has a social responsibility committee, 0 otherwise; *ratio_neddir*: average number of directorships of non-executive directors; *ratio_cidir*: average number of directorships of community influentials.

Model 1 investigates the relationships between the overall social performance (*csp*) and the variables of interest. The R^2 is 0.198 and the model appears highly significant (chi-square = 55.79, $p = 0.000$). As regards our variables of interest, the proportion of independent directors (*prind*) (H1), community influentials (*pci*) (H2) and women directors (*pw*) (H3) are significantly associated with the overall social performance (*csp*) with the expected sign. The proportion of independent directors (*prind*) (H1) and the proportion of community influentials (*pci*) (H2) on the board of directors are both positively related to the overall social performance (*csp*), suggesting that the presence of independent directors and community influentials both enhance board awareness about stakeholders' expectations and promote corporate social performance in order to ensure congruence between the firm's decisions and stakeholders' values. The proportion of women directors (*pw*) (H3) is also positively associated with the overall social performance (*csp*) suggesting that the presence of women on the board increases the awareness of the company on issues relating to various stakeholders and thus leads to greater social performance. CEO duality (*dual*) (H4) is also significantly associated with the overall social performance (*csp*) and the sign of the relationship is negative; providing empirical support for the alternative hypothesis of a negative association as predicted by agency theory. Thus, the empirical analysis supports the advocates of the separation of the roles of CEO and chairman and the agency theory

Table 4. Descriptive statistics for the control variables.

	Mean	SD	Min	p25	p50	p75	Max
3 years							
bsize	10.572	2.670	5.000	9.000	11.000	12.000	28.000
roe	19.960	22.745	−77.010	11.340	19.650	26.000	178.910
size	11,700.00	18,700.00	51.566	1294.99	4787.65	13,300.00	147,000.00
2005							
bsize	10.161	2.508	5.000	8.000	10.000	12.000	18.000
roe	20.851	25.505	−32.380	9.845	17.410	23.975	178.910
size	8023.20	14,000.00	60.26	886.40	2133.10	9441.00	86,700.00
2006							
bsize	10.969	2.634	6.000	9.000	11.000	13.000	20.000
roe	19.285	15.139	−32.750	12.730	17.170	24.760	85.570
size	14,100.00	23,200.00	51.57	1642.17	5272.00	14,300.00	147,000.00
2007							
bsize	10.573	2.832	6.000	9.000	11.000	12.000	28.000
roe	19.775	25.745	−77.010	11.340	19.650	29.620	92.470
size	13,000.00	17,100.00	113.57	1913.40	6591.77	15,800.00	98,800.000

bsize: number of directors sitting on board; *roe*: return on equity; *size*: total sales.

hypothesis that CEO duality reduces the overall legitimacy of the company for its stakeholders. Model 1 provides mixed empirical support of a relationship between the board's relational capital proxies (*ratio_neddir*, *ratio_cidir*) (H6) and the overall corporate social performance: while the average number of directorships held by non-executive directors (*ratio_neddir*) is positively associated with the overall social performance (*csp*), the average number of directorships held by community influentials (*ratio_cidir*) is negatively associated with it. Such evidence is in line with the idea that boards with great prestige in terms of the external directorships of non-executive directors benefit in terms of stakeholders' legitimacy (Kassinis and Vafeas 2002) but, when non-executive directors are community influentials, the fact that they serve on many boards is detrimental to the legitimacy of the company as they cannot adequately play their service function, in line with the results of Di Pietra *et al.* (2008).

Model 2 provides empirical evidence of the relationship between community performance (*comm*) and board reputation. Model 2 is the model with greatest predictive power: the R^2 is 0.308 and the model appears highly significant (chi-square $= 142.18$, $p = 0.000$). Among the proxies for board reputation, we find a significant association between community performance (*comm*) and the proportion of community influentials (*pci*) (H2), the proportion of women directors (*pw*) (H3) and the presence of a CSR committee (*csr_board*) (H5). The findings thus suggest that community influentials are able to focus the attention of the board on the impact of the company's activity on the community. Female directors' communal characteristics (i.e. friendly, kind, unselfish, concerned with others and expressive, Eagly *et al.* 2003) increase the sensitivity of the board towards external stakeholders' needs. The CSR committee, which is in charge of activities and strategies relating to ethical, environmental and social issues, is more likely to increase the legitimacy of the company in the community.

In Model 3, as regards our variables of interest, only the proportion of women directors (*pw*) (H3) and CEO duality (*dual*) (H4) appear to be related to the corporate social performance measured as relations with the employees (*er*). The estimated coefficients are significant and they have the expected sign. The coefficient for the proportion of women directors (*pw*) (H3) is positive, thus supporting the hypothesis of a positive association between the proportion of women directors and corporate social performance. Such a result could be interpreted along

Table 5. Correlation matrix.

	csp	comm	er	env	hr	pr	prind	pci	pw	dual	csr_board	ratio_neddir	ratio cidir	bsize	Size
csp	1														
comm	0.5008***	1													
er	0.3238***	−0.0216	1												
env	0.4926***	0.0887	0.0388	1											
hr	0.0386	0.0123	0.1437**	0.2432***	1										
pr	0.0399	−0.2197***	0.1169*	0.0403	−0.0250	1									
prind	*0.0757*	0.0159	*0.0759*	0.1362**	−0.0100	0.034	1								
pci	0.1996***	0.2403***	0.0501	0.1554***	0.0121	−0.2237***	0.1778***	1							
pw	0.1199**	0.1883***	0.0203**	0.0385	0.194**	−0.1235**	0.0983	0.2256***	1						
dual	−0.1947***	0.034	−0.0692	−0.0980	0.0408	−0.0391	0.1636***	−0.0165	0.1490**	1					
csr_board	0.1113*	0.1548***	0.0141	0.0816	−0.0550	−0.0946	−0.0109	−0.0846	0.2129***	−0.0111	1				
ratio_neddir	0.1531**	0.1800***	0.0688	0.082	0.0501	−0.1591***	0.0478	0.3295***	0.1942***	0.0339	0.2948***	1			
ratio_cidir	−0.0475	−0.0392*	0.0481	−0.0032	−0.0140	−0.124*	0.0705	0.0961	0.1073	0.0895	0.1568**	0.7740***	1		
bsize	0.0023	0.1960***	0.0509	−0.0208	0.0015	−0.1022*	−0.2635***	0.0108	−0.0386	−0.0674	0.0886	0.1371**	0.0621	1	
size	0.2022***	0.3410***	0.1637***	0.1533**	−0.0660	−0.1421**	0.1265**	0.2608***	0.1776***	0.0592	0.1184*	0.3465***	0.2303***	0.3459***	1
roe	0.0259	0.0673	0.1020*	0.0436	−0.0200	0.0069	0.0814	−0.0052	0.0957	0.0217	0.0774	0.0572	0.0338	0.0028	0.100

*Significant at 10%; **significant at 5%; ***significant at 1%; *csp*: overall social performance; *comm*: community performance; *er*: employee relations performance; *env*: environmental performance; *hr*: human rights performance; *pr*: product quality and safety performance; *prind*: proportion of independent directors; *pci*: proportion of community influential directors; *pw*: proportion of women on board; *dual*: dummy variable equal to 1 if CEO is also chairman, 0 otherwise; *csr_board*: dummy variable equal to 1 if the company has identified a director in charge of social responsibility issues or when boards have a committee in charge of CSR/ethics/sustainability matters, 0 otherwise; *ratio_neddir*: average number of directorships of non-executive directors; *ratio_cidir*: average number of directorships of community influentials; *bsize*: number of directors sitting on board; *size*: natural logarithm of total sales; *roe*: return on equity.

Table 6. Multivariate regression results (Equation (1)).

Variables	(1) *csp*	(2) *comm*	(3) *er*	(4) *env*	(5) *hr*	(6) *pr*
prind	**0.503****	0.753	0.566	**1.158****	0.071	−0.034
	[0.040]	[0.338]	[0.371]	**[0.032]**	[0.857]	[0.939]
pci	**0.367***	**1.891*****	−0.071	**0.954****	−0.311	**−0.625****
	[0.062]	**[0.002]**	[0.870]	**[0.023]**	[0.368]	**[0.042]**
pw	**0.411***	**1.425***	**0.144***	−0.149	**0.581****	0.051
	[0.089]	**[0.090]**	**[0.085]**	[0.811]	**[0.021]**	[0.898]
dual	**−0.123****	−0.174	**−0.212***	−0.198	−0.007	−0.022
	[0.035]	[0.330]	**[0.080]**	[0.174]	[0.950]	[0.819]
csr_board	0.042	**0.400****	0.017	0.200	**0.266****	−0.141
	[0.474]	**[0.022]**	[0.914]	[0.177]	**[0.020]**	[0.194]
ratio_neddir	**0.053***	0.092	0.027	0.039	**0.116*****	−0.012
	[0.061]	[0.325]	[0.698]	[0.580]	**[0.009]**	[0.813]
ratio_cidir	**−0.046*****	**−0.156*****	−0.005	0.003	**−0.077****	0.004
	[0.005]	**[0.002]**	[0.910]	[0.945]	**[0.013]**	[0.891]
bsize	0.018	−0.013	0.036	−0.001	**0.053*****	0.017
	[0.134]	[0.733]	[0.290]	[0.966]	**[0.006]**	[0.442]
roe	−0.002	−0.002	−0.003	−0.004	−0.001	0.002
	[0.175]	[0.567]	[0.359]	[0.209]	[0.604]	[0.279]
size	**0.055****	**0.243*****	0.076	0.070	−0.043	**−0.072***
	[0.011]	**[0.000]**	[0.148]	[0.140]	[0.295]	**[0.060]**
basic industries	0.045	**−1.072****	−0.210	0.589	−0.254	**1.173*****
	[0.789]	**[0.044]**	[0.636]	[0.249]	[0.124]	**[0.000]**
cyclical consumer goods	0.037	**−0.881*****	−0.161	**1.325*****	−0.261	0.165
	[0.649]	**[0.001]**	[0.433]	**[0.000]**	[0.126]	[0.254]
non-cyclical consumer goods	0.060	**−0.882****	0.390	**0.820*****	0.162	−0.189
	[0.617]	**[0.011]**	[0.180]	**[0.002]**	[0.183]	[0.390]
cyclical services	**−0.175****	**−1.309*****	−0.036	**0.424*****	−0.054	0.097
	[0.023]	**[0.000]**	[0.877]	**[0.008]**	[0.719]	[0.588]
financial	**−0.196****	**−1.962*****	0.023	**0.466***	0.071	**0.421*****
	[0.032]	**[0.000]**	[0.955]	**[0.052]**	[0.607]	**[0.004]**
general industrial	−0.022	**−1.165*****	0.189	**0.729*****	**0.449****	**0.585*****
	[0.789]	**[0.000]**	[0.392]	**[0.001]**	**[0.020]**	**[0.001]**
information technology	0.037	**−0.963*****	**0.431***	**0.824*****	**−0.541*****	**0.434*****
	[0.672]	**[0.000]**	**[0.056]**	**[0.000]**	**[0.001]**	**[0.008]**

utilities	−0.206	**− 1.488*****	**− 1.358*****	**1.871*****	−0.041	−0.011
	[0.334]	**[0.000]**	**[0.000]**	**[0.007]**	[0.845]	[0.955]
constant	**− 0.721****	**− 2.639*****	−0.942	**− 1.929*****	0.451	**1.453****
	[0.028]	**[0.005]**	[0.213]	**[0.005]**	[0.396]	**[0.011]**
Observations	265	265	265	265	265	265
R-squared	0.198	0.308	0.106	0.219	0.139	0.187
Number of observations	169	169	169	169	169	169

p-values in brackets: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$; *csp*: overall social performance; *comm*: community performance; *er*: employee relations performance; *env*: environmental performance; *hr*: human rights performance; *pr*: product quality and safety performance; *prind*: proportion of independent directors; *pci*: proportion of community influential directors; *dual*: dummy variable equal to 1 if CEO is also chairman, 0 otherwise; *csr_board*: dummy variable equal to 1 if the company has identified a director in charge of social responsibility issues or when boards have a committee in charge of CSR/ethics/sustainability matters, 0 otherwise; *ratio_neddir*: average number of directorships of non-executive directors; *ratio_cidir*: average number of directorships of community influentials; *pw*: proportion of women on board; *bsize*: number of directors sitting on board; *roe*: return on equity; *size*: natural logarithm of total sales; *industry dummies* (basic industries, cyclical consumer goods, non-cyclical consumer goods, cyclical services, financial, general industrial, information technology, utilities).

the lines that boards with a greater proportion of women directors are more sensitive to others' needs and self-worth. The coefficient for CEO duality (*dual*) (H4) is negative, supporting the alternative hypothesis formulated by agency theory that CEO duality reduces the ability of the company to pursue and implement socially responsible strategies, rather than the organisation theory hypothesis that strong leadership is a characteristic that brings legitimacy.

Model 4 provides the regression coefficients when corporate social performance is measured along the environmental dimension (*env*). The proportion of independent directors (*prind*) (H1) and the proportion of community influentials (*pci*) (H2) are both significantly and positively associated with environmental performance (*env*). This evidence supports the idea that independent directors (H1) and community influentials (H2) are more likely to consider stakeholders' needs and expectations in particular regarding the environmental impacts of corporate activities.

Model 5 provides evidence of a relationship between the proportion of women directors (*pw*) (H3), the presence of the CSR committee (*csr_board*) (H5) and corporate social performance, measured along the human rights dimension (*hr*). The empirical evidence suggests that a sensitive and proactive board on stakeholders' needs and issues is associated with greater strengths in human rights. We find mixed evidence of the relationship between the relational capital of the board (*ratio_neddir*, *ratio_cidir*) (H6) and corporate social performance, measured along the human rights dimension (*hr*). The external directorships of non-executives (*ratio_neddir*) are positively related to human rights performance (*hr*), supporting the idea that they bring greater prestige and awareness of sensitive issues. When the board relational capital is measured as the average number of directorships of community influentials (*ratio_cidir*), we find a negative sign for this relationship, thus suggesting that while community influentials are likely per se to improve social performance, they are detrimental to it if they have many directorships. The evidence confirms that community influentials are not able to properly fulfil their functions if they serve on too many boards and thus are not able to increase the firm's social performance.

Model 6 provides quite surprising results, given that it shows a significant and negative relationship between the proportion of community influentials (*pci*) (H2) and corporate social performance measured along the product quality and safety dimension (*pr*). A possible explanation of this negative relationship is that a community influential director may not have adequate competences to improve product quality and safety and thus concentrates the efforts of the company in other areas of social performance such as community or the environment.

Finally, the models, in line with previous findings (e.g. Ullman 1985), depict a size and industry effect.

5.3. *Robustness results*

In order to test the robustness of our results, we ran a number of alternative models. In particular we ran the regressions using both the fixed effects model and the first difference model. In both cases, the results do not vary significantly from those reported in the previous section and hence the detailed results are not reported here. The only relevant change in results under these two models is obtained with respect to the proportion of independent directors (*prind*) (H1) which is not significantly associated with corporate social performance measured as the overall average score (*csp*) and along the environmental dimension (*env*).

We have also taken into consideration that our results may suffer from an endogeneity problem due to the potential endogenous relationship between community influentials and social performance. Thus, we perform a three-stage least square regression model using two simultaneous equations. Particularly, Equation (2) shows the effect of community influentials over the overall performance score while Equation (3) tests the effect of social performance over community influentials.

$$\begin{aligned} csp_{it} = {} & \alpha_0 + \alpha_1 prind_i + \alpha_2 pci_i + \alpha_3 pw_i + \alpha_4 dual_i + \alpha_5 csr\_board_i + \alpha_6 ratio\_dir_i \\ & + \alpha_7 bsize_i + \alpha_8 yr2005_i + \alpha_9 yr2006_i + \alpha_{10n} industry_{ni} + \varepsilon_i \end{aligned} \tag{2}$$

$$\begin{aligned} pci_{it} = {} & \alpha_0 + \alpha_1 csp_i + \alpha_2 prind_i + \alpha_3 pw_i + \alpha_4 dual_i + \alpha_5 csr\_board_i + \alpha_6 ratio\_dir_i \\ & + \alpha_7 bsize_i + \alpha_8 roe + \alpha_9 size + \alpha_{10} yr2005_i + \alpha_{11} yr2006_i + \alpha_{12n} industry_{ni} + \varepsilon_i \end{aligned} \tag{3}$$

where:

csp	measure of corporate social performance; it refers to the KLD overall and social components ratings (*csp*, *comm*, *er*, *env*, *hr*, *pr*);
prind	board composition; proportion of independent directors;
pci	board competence; proportion of community influentials;
dual	board leadership; dummy variable equal to 1 if CEO is also chairman, 0 otherwise;
csr_board	board structure; dummy variable equal to 1 if the company has identified a director in charge of social responsibility issues or when boards have a committee in charge of CSR/ethics/sustainability matters, 0 otherwise;
ratio_dir	relational capital; we employ two measures: average number of directorships held by non-executive directors (*ratio_neddir*) or by community influentials (*ratio_cidir*);
pw	board diversity; proportion of female directors;
bsize	board size; number of directors sitting on the board;
roe	profitability; return on equity;
size	company's size; natural logarithm of total sales;
yr2005	year dummy variable equal to 1 if data point is observed in year 2005, 0 otherwise;
yr2006	year dummy variable equal to 1 if data point is observed in year 2006, 0 otherwise;
$industry_n$	industry dummies (basic industries, cyclical consumer goods, non-cyclical consumer goods, cyclical services, financial, general industrial, information technology, utilities).

The results are presented in Table 7. Columns (A) and (B) report results respectively for Equations (2) and (3). The results indicate that the proportion of community influentials (*pci*) is positive and significant for corporate social performance (*csp*) ($p = 0.051$) (column A), while the coefficient of corporate social performance (*csp*) is not significant ($p = 0.131$) for the proportion of community influentials (*pci*) (column B), thus confirming that community influentials play a role in orienting corporate social performance.

6. Conclusion

In this paper we investigate the relationship between board reputation, in terms of composition, competence, diversity, leadership, structure and links with the external environment, and the social performance of Best Corporate Citizens, after controlling for other company-specific characteristics. By doing so, we extend previous studies on social performance, by considering

Table 7: Robustness test – simultaneous equations model.

Variables	A *csp*	B *pci*
pci	**0.328***	
	[0.051]	
csp		0.354
		[0.131]
prind	**0.044***	**0.184***
	[0.067]	**[0.071]**
pw	**0.226***	0.097
	[0.094]	[0.382]
dual	**– 0.116*****	
	[0.004]	
csr_board	– 0.049	
	[0.279]	
ratio_neddir	0.044	
	[0.159]	
ratio_cidir	**– 0.018****	
	[0.043]	
bsize	0.012	0.000
	[0.814]	[0.961]
roe		0.000
		[0.658]
size		**0.027*****
		[0.002]
yr2005	**– 0.152*****	**0.077****
	[0.000]	**[0.036]**
yr2006	– 0.029	**– 0.049***
	[0.636]	**[0.057]**
basic industries	– 0.14	– 0.061
	[0.441]	[0.616]
cyclical consumer goods	– 0.077	0.042
	[0.615]	[0.679]
non-cyclical consumer goods	– 0.061	**0.175***
	[0.742]	**[0.091]**
cyclical services	– 0.155	0.11
	[0.333]	[0.294]
financial	– 0.282	**0.23****
	[0.117]	**[0.044]**
general industrial	– 0.115	0.042
	[0.455]	[0.690]
information technology	– 0.017	– 0.008
	[0.911]	[0.936]
utilities	0.178	– 0.127
	[0.256]	[0.219]
constant	**0.691*****	**– 0.648*****
	[0.002]	**[0.000]**
Observations	265	265
R-squared	0.1751	0.1885

p-values in brackets: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

board reputation as a governance contextual factor that can influence the ability of the company to be involved in socially responsible actions.

Our results show that board reputation plays a role in driving corporate social performance in the companies that are the Best Corporate Citizens.

Our first hypothesis on the association between the proportion of independent directors and corporate social performance (H1) is supported by our statistical tests for the overall social performance and for the component of social performance measured along the environmental dimension.

The empirical analysis also provides support for the second hypothesis regarding the role of community influential directors, who have been identified as promoters of stakeholders' engagement and management. We find a significant and positive association between the proportion of community influentials and our measure of overall corporate social performance (H2). Such positive association also holds for two components of corporate social performance: community performance and environmental performance.

Together the evidence suggests that the traditional dichotomy between insiders and outsiders may not depict well the service role of the board in terms of legitimacy and reputation. Research that relates corporate governance and social performance should thus more specifically consider the various individual characteristics of directors that may have an impact on various corporate processes carried out by the board of directors.

Regarding our third hypothesis on the role of women on the board, we find a significant and positive relationship between the proportion of women on the board and the overall social performance (H3), community performance, employee relations and human rights. Such evidence suggests that women directors enhance sensitivity towards others and their consideration of the multiple interests of stakeholders is able to improve the service role of the board of directors and thus lead to greater legitimacy and social performance.

We provide empirical evidence that best standards of corporate governance also matter in terms of how the company performs socially. Our empirical evidence supports the alternative hypothesis formulated on the basis of agency theory of a negative relationship between CEO duality and corporate social performance (H4), suggesting that when the roles of CEO and chairman of the board are concentrated in the hands of the same person, the company is less likely to be involved in socially responsible activities, or at least, it is likely to be associated with lower corporate social performance.

The empirical results also support our fifth hypothesis, providing evidence of a significant and positive relationship between the presence of a CSR committee and corporate social performance (H5) measured along the community dimension. When the board appoints a committee to manage and work on the social and environmental impacts of business activities, it is more likely that the company will have a greater legitimacy in the community in which it operates.

Regarding the results on the relationship between a board's relational capital and corporate social performance (H6), the empirical evidence supports the alternative hypothesis of a positive association (enhances reputation) when a board's relational capital is measured by the number of directorships of non-executive directors. This can be interpreted along the lines that when independent directors have a greater number of ties with other organisations, then they are able to provide better strategic guidelines on how to manage the social impacts of corporate activities. On the other hand, the empirical evidence also supports the alternative hypothesis of a negative association (perceived inadequacy of commitment) when a board's relational capital is measured by the number of directorships of community influentials. The empirical results suggest that, although community influential directors are likely to be associated with higher levels of social performance, when they hold too many directorships, their contribution to the overall success of CSR is negative. The evidence thus supports the view that community influential directors with too many directorships are not able to successfully contribute to corporate social performance.

Summing up, we are of the view that companies which have CSR more 'at their heart' seem to benefit from this approach: indeed, taken overall, the appointment of community influential and women directors to the board and the presence of a CSR committee have a positive impact on corporate social performance. On the other hand, where companies exhibit corporate governance that does not meet generally accepted best standards (for example, they combine the roles of chairman and CEO) there is a negative effect on social performance.

Our paper provides both theoretical and practical implications. From a theoretical perspective, in times of great debate about the role of the board of directors in driving corporate performance in an ethical and responsible way, it shows that research on corporate governance needs to move beyond the paradigms of agency theory to overcome the traditional distinction between executive and non-executive directors, because of the non-homogeneity in terms of backgrounds, competencies and effects on how the board performs its various roles. From a practical perspective, the findings provide useful insights to governance standard setters, regulators and investors interested in the triple bottom line performance of companies, and the important role of the board of directors in addressing CSR activities and their outcomes.

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Notes

1. Let us assume that a company operating in the mining industry appoints a World Wildlife Fund (WWF) representative to its board. This appointment is to signal to the wider society that the company wants to be committed to the environment and thus society will expect this company to be more environmentally responsible given the presence of that particular community influential.
2. Although diversity is a rich concept and would include gender, race, age, possible disabilities, etc., given the operational difficulties in proxying for such multiple diversity, we will rely only on the presence of women on the board, that is, gender diversity. We are grateful to an anonymous referee for pointing this out.
3. Agentic attributes describe a behaviour that is independent, masterful, assertive and instrumentally competent (Eagly *et al.* 2003).
4. Such a committee may also be called the sustainability committee or ethics committee.
5. The choice of this sample does not lead to biased results given that we look at the social performance of firms in single areas of CSR. Whilst belonging to the list of the Best Corporate Citizens, these firms present both strengths and weaknesses as the ratings present both positive and negative values. Thus KLD's social performance data of the Top 100 Best Corporate Citizens provide a great degree of variability in the behaviour of the firms. Moreover, by using a period of three years (2005, 2006 and 2007) we are able to analyse the company's longer-term social performance. Nonetheless, we recognise that the generalisation of the findings of the study may be limited given the fact that the sample consisted of the 176 most highly rated companies.
6. The panel consists of 93, 96 and 89 companies, respectively, for year 2005, 2006 and 2007. Twenty-five companies appear in the list for three years, 52 for two years and 99 for just one year.
7. http://www.business-ethics.com/BE100_all
8. In the discussion below, we have referred to these as Models 1–6 although we recognise that community performance (*comm*), employee relations (*er*), environmental performance (*env*), human rights (*hr*) and product quality and safety (*pr*) are essentially each a sub-set of the overall social performance (*csp*).

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Exploring the direct and indirect performance effects of information/communication technology and management accounting and controls

JASON ZEZHONG XIAO[a]*, RONG-RUEY DUH[b] and CHEE W. CHOW[c]

[a]*Cardiff Business School, Cardiff University, Colum Drive, Cardiff CF10 3EU, UK;* [b]*Department of Accounting, National Taiwan University, No. 1, Sec. 4, Roosevelt Road, Taipei, Taiwan 106;* [c]*Retired, La Jolla, California, USA*

The primary aim of this paper is to explore whether, and how, information and communication technology (ICT) mediates the performance effect of management accounting and controls (MAC). A second objective is to advance understanding of Chinese firms' management practices. Archival and survey data from 219 exchange-listed Chinese firms show that both ICT and a wide range of MAC are extensively used, though there is great variation across firms in the use of each technique. We also find that both ICT and MAC (with a few exceptions, including activity-based costing/management) have significant and positive direct performance effects and in addition, ICT enables MAC to have a significant and positive indirect performance effect. These results suggest that both the use and evaluation of ICT and MAC would be made more effective by explicitly considering the mediating role of ICT in MAC deployment. Since Chinese firms are rapidly expanding their use of ICT and MAC, they will especially benefit from paying heed to these lessons.

Keywords: Chinese firms; information and communication technology; management accounting and controls; mediating effects; moderating effects

1. Introduction

In recent years, a wide range of management accounting and control (MAC) techniques (e.g. budgeting, performance measurement, costing systems) have become integral to companies' management systems. Concurrent advances in information and communication technology (ICT) (e.g. enterprise resource planning (ERP) systems and the Internet) have made available a powerful platform for utilising these techniques. The literature has recognised that ICT and MAC have the potential to complement each other as ICT can borrow content from MAC while MAC can

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*Corresponding author. Email: xiao@cardiff.ac.uk

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borrow connection and data processing capacity from ICT (Dechow *et al.* 2007). However, the design of one can also constrain that of the other (Granlund and Malmi 2002). As such, users of MAC and ICT can benefit from understanding *if*, and *how*, they can support each other to affect firm performance. Yet prior studies of MAC and ICT have largely examined their performance effects in isolation of each other. This may be attributed to MAC issues seldom being the focus among ICT studies and vice versa (Sutton 2005, Dechow *et al.* 2007).

In theory, MAC and ICT may support each other to affect firm performance in one of two ways. First is mediation, wherein a mediator (e.g. ICT) represents a significant pathway of influence through which a focal independent variable (e.g. MAC) has an effect on the dependent variable (e.g. firm performance). The mediating variable accounts, fully or in part, for the relationship between the independent variable and the dependent variable (Baron and Kenny 1986). If ICT fully mediated MAC's effect on firm performance, then MAC would only affect firm performance indirectly (via ICT) whereas if the mediation were a partial one, then MAC would have both direct and indirect effects on firm performance. The other way that the effect could arise is through moderation, wherein a variable (e.g. ICT) affects the direction and/or strength of the relation between an independent variable (e.g. MAC) and a dependent variable (e.g. firm performance) (Baron and Kenny 1986). The existence of such a relationship manifests in the fact that the coefficient of the interaction term (i.e. MAC*ICT) significantly differs from zero (Gerdin and Greve 2004) and that the moderating variable itself (e.g. ICT) is not associated with either the independent or dependent variable (Shields and Shields 1998, Luft and Shields 2003).

There is little empirical evidence on whether and how ICT and MAC support each other to affect firm performance. Among five Chinese mini-cases of ERP implementation failures that are reported in Xue *et al.* (2005), at least two are caused by a mismatch between ERP and cost and management controls. In the only study to have directly examined performance effects, Chapman and Kihn (2009) found that integration of ERP and budgeting has an effect on firms' perceptions-based financial, social and market performance measures. These prior studies have added to our understanding of ICT's and MAC's impacts on performance but are silent on whether ICT (MAC) mediates or moderates the performance effect of MAC (ICT).

Our study primarily aims to bridge this gap by investigating whether ICT mediates MAC's effect on firm performance.[1] Whilst data from many contexts could be used to address this question, we focus on Chinese firms because the Chinese context offers some unique advantages for studying the use and effects of new technologies or management techniques. Since 1978, but particularly since the 1990s, Chinese firms have had to adjust to a new era of privatisation and increased competition (Chow *et al.* 2007). As such, they have great incentives to adopt management systems and processes, including MAC and ICT, that can help their response to increased competition from both domestic and foreign rivals. In doing so, Chinese firms' choice of MAC and ICT is less likely to be constrained by the existence of legacy systems as compared to their Western counterparts. This is because only in the past decade have they been allowed large-scale contact with, and access to, Western technologies and management practices. The potential for greater variation across Chinese firms' MAC and ICT practices, in turn, makes it more likely that the latter's effects can be detected.

Inasmuch as this study focuses on Chinese firms, a second aim of this paper is to advance understanding of these firms' management practices. Chinese business enterprises have become key participants in the global economy over the past decade. It is important for their investors, customers, competitors and partners to have improved understanding of their systems and processes. Specifically relating to MAC and ICT, many Chinese firms have made tremendous recent investments in adopting these techniques (Liu and Lord 2006, Duh *et al.* 2009). It would be useful to learn the current state of their MAC/ICT deployment as well as how these investments have affected firm performance.

Using archival and survey data on 219 listed Chinese firms, we find that a range of MAC techniques have gained widespread adoption and that ICT is used to support a range of management functions. In both cases, usage ranges from 'not at all' to 'extensively' across the sample firms. Relating to performance effects, we find both ICT and the use of MAC pertaining to planning and management control to have a significant and positive direct effect on firm performance. In addition, MAC (with a few exceptions such as activity-based costing/management, described hereafter as 'ABC/ABM') has a significant and positive indirect performance effect through ICT. The ICT effect is a mediating rather than a moderating one, implying that the performance effect of MAC depends not so much on the level of ICT as on how ICT serves as a conduit through which MAC's effects are actualised. From a research perspective, this finding supports recent calls for attention to MAC's indirect performance effects and augments this budding literature with findings from the specific case of ICT deployment.[2] From an applications perspective, our finding implies that maximising the performance benefits of MAC and ICT requires attending to the integration between them, rather than treating the levels of MAC and ICT as independent decisions. In the specific case of China, the government has been promoting the adoption of ICT to support economic development and Chinese business enterprises have substantially increased their ICT investments.[3] At the same time, Chinese firms' approach to evaluating their ICT applications has been criticised as being too narrowly focused on ICT alone without considering how it interfaces with other management practices (Zhang and Zhou 2005). Our finding gives impetus to expanding both the planning and evaluation of ICT to include how ICT may mediate MAC's effect on firm performance. In this regard, our failure to observe performance effects from Chinese firms' use of ABC/ABM is particularly worthy of note. This finding suggests that some MAC techniques may not benefit performance either by themselves or through the mediation of ICT and gives impetus for further research into why this is the case.

The remainder of this paper is structured as follows. In the next section, we provide an overview of the institutional environment in which Chinese firms operate and from which the data were obtained. Then related prior studies are reviewed as the basis for developing four hypotheses. The research method is described next, followed by the results. The final section concludes the paper with a summary and discussion of implications.

2. Institutional background

From the establishment of the People's Republic of China in 1949 to the late 1970s, the Chinese economy operated under a central planning system. In 1978, the central government instigated an open-door policy as well as a movement towards marketisation. Chinese firms gained exposure to, and the leeway to emulate, Western management accounting techniques. By the 1980s, cost-volume-profit (CVP) analysis and responsibility accounting had become widely used (Bromwich and Wang 1991). By the early 1990s, a variety of other techniques, including standard costing, contribution analysis, variable costing, transfer pricing, capital budgeting and operational budgeting, had also become widespread (Scapens and Meng 1993).[4]

In 1993, the central government adopted the establishment of a socialist market economy as the goal of the economic reform. This policy was accompanied by a massive share-privatisation of state-owned enterprises, reduced government control over corporate affairs and an enhanced role for market forces. Establishment of the Shanghai and Shenzhen stock exchanges about this time, China's accession to the World Trade Organization in 2001 and the government's continued opening of the economy have further increased Chinese firms' autonomy and incentives to adopt performance enhancing changes. Part of their response was to expand their use of MAC techniques. As reported in a recent survey of listed Chinese firms (Duh *et al.* 2009), a broad range of MAC techniques had become widely adopted by the mid-2000s. Specifically, Duh *et al.* (2009) found relatively high rates of adoption for operating budgets, CVP analysis, responsibility accounting and performance-based compensation. Of particular interest, there was considerable variation across firms in the extent to which each MAC technique was used. There was also divergence across techniques in the extent of use, as evidenced by the considerably lower adoption rates for standard costing, activity-based management and Kaizen costing.

Chinese firms' access to and adoption of ICT also occurred rather late (i.e. in the 1970s), as compared to their Western counterparts. A major development was the government's launching of the 86.3 Project in March 1986 to track world developments in ICT and to produce China's own advanced ICT products (China Automation Net 2003). In 1997, the government formally called for promoting the national economy through the widespread use of information technology ('informatisation') (Jiang 2006). A survey found that by the early 2000s, ICT had established a strong foothold in large Chinese firms, though usage varied across techniques (Li *et al.* 2002). On the high side of usage, 92.5% of the firms had established internal networks and 76.3% had implemented financial software. A variety of other techniques was also in use, though less extensively: ERP (36.5%), manufacturing management information systems (20%), customer relations management systems (12.5%) and supply chain management systems (11.3%). ICT adoptions have continued to grow through the remainder of the decade, as suggested by a survey of manufacturing firms in 11 provinces which found that by 2009, 96.6% of the firms had adopted manufacturing management information systems (Yu 2010). Concomitant with this development, the level of systems integration has also increased. For example, by 2009, all 10 of the largest iron and steel companies had adopted ICT in procurement, production, sales, quality control, equipment management, finance and cost management, and office automation. They had also integrated financial and cost management with material management and production management, with some also using ERP for eCommerce, human resource management and decision support (*Renmin Youdian Newspaper* 2009).

These advances, however, apply more to large firms than to small and medium-sized enterprises (SMEs). For example, Qian and Liu (2004) found that about 30% of SMEs hardly made any use of ICT. Their rates of ICT application were 50% for office automation, 35% for management information systems, 25% for electronic data processing and 6.7% for computer-aided manufacturing. Along the same vein, a survey of SMEs in Zhujiang Delta (one of the most industrialised areas in China) found that their main ICT applications were in office automation, financial management and personnel management, with much less usage in ERP, supply chain management, customer relations management and manufacturing planning and control systems (Li and Peng 2007).

In summary, both MAC and ICT have gained wide adoption in large Chinese firms, but there is considerable variation in usage rates and degree of systems integration both across techniques and across firms' use of each technique. These features suggest that large Chinese firms should be a suitable sample for studying the effects of MAC and ICT on firm performance. Since the use of MAC and ICT in Chinese SMEs lags that of the large firms, the findings of this study can be instructive for them as they consider changes in their MAC/ICT deployment.

3. Literature and research hypotheses

Studies on the adoption of ICT (typically ERP) in China (e.g. Martinsons 2004, Xue *et al.* 2005, Zhe *et al.* 2005, Yusuf *et al.* 2006) have focused on the characteristics of ICT adoption or critical success/failure factors. Few studies have examined the performance effect of ICT. An exception is Wang and Zhang (2007). This study considered only the direct effect of ERP and found that adopters outperformed non-adopters in terms of financial performance measures.

Relating to management accounting practices in China, several studies have examined the level of and determinants of MAC adoption (e.g. Firth 1996, Chalos and O'Connor 2004, O'Connor *et al.* 2004, 2006). To our knowledge, Duh *et al.* (2009) is the only published study to have explored the performance effects of MAC adoption by Chinese firms, but it did not consider MAC's indirect performance effect. Furthermore, none of the extant studies has paid attention to ICT or whether it moderates or mediates the performance effect of MAC. Below, we review prior studies as the basis for hypothesis development. This process culminates in a prediction that ICT would mediate MAC's effect on firm performance.

3.1. *The impact of MAC on firm performance*

Management accounting studies have argued that the use of MAC can increase firm performance via such avenues as supporting the implementation of competitive strategies, increasing the responsiveness to competition, facilitating the adoption of world-class manufacturing practices and making the firm more innovative (Bisbe and Otley 2004, Anderson 2007, Banker *et al.* 2008). In a study of UK firms, Kennedy and Affleck-Graves (2001) found that a sample of ABC adopters outperformed a matched sample of non-adopters by approximately 27% over the three years following initial ABC implementation. This result was robust for both accounting and market-based measures of performance. They also showed that the performance benefits were the result of better cost control and asset utilisation, coupled with greater use of financial leverage. Ittner *et al.* (2002), using a US sample, also found a positive, although modest, association between the extensiveness of ABC use and manufacturing performance, as measured by return on net plant assets, improvements in cycle time and quality and cost reductions. However, they did not find a significant association between ABC and return on investment. Hoque and James (2000) found that, in their sample of Australian firms, greater balanced scorecard (BSC) usage was associated with increased organisational performance. While the empirical evidence reviewed above pertains only to ABC, BSC, budget systems and project management systems, the fact that MAC is designed for increasing performance suggests that other aspects of MAC could have similar performance effects. Thus we hypothesise:

H1: There is a positive effect of MAC use on firm performance.

3.2. *The impact of ICT on firm performance*

A number of studies have shown that ICT and ICT-related resources can be used to create unique capabilities that result in superior firm performance (Grant 1991, Bharadwaj 2000, Hunton *et al.* 2003, Santhanam and Hartono 2003). These studies suggest that some valuable, rare and costly-to-imitate ICT resources, such as managerial ICT skills, can be a source of sustained competitive advantage for a firm. Even when ICT resources themselves are not a source of sustained competitive advantage, they can still improve performance by helping the firm to realise the potential of other resources that are valuable, rare and costly to imitate. For example, Schrage (2002, p. 21) has argued that '[t]he technology that went into Wal-Mart was not brand new and not especially at the technology frontiers, but when it was combined with the firm's managerial and organisational innovations, the impact was huge'. In the same vein, Banker *et al.* (2006) contend that ICT enables unique organisational routines and is often bundled with an organisation's commitment to specific business processes which are often inimitable. Another way that ICT can benefit firm performance is by enhancing the quality and effectiveness of organisational decision making. For example, ICT can facilitate more rapid identification of problems and opportunities and can provide organisational intelligence that is more accurate, comprehensive, timely and available (Molloy and Schwenk 1995). More broadly, ICT use can enhance the ability of the individual or organisation to (a) store and retrieve large amounts of information more quickly and inexpensively; (b) more rapidly and selectively access information created outside the organisation; (c) more rapidly and accurately reconfigure information so as to create new information through development of forecasting models or financial analyses; (d) more compactly store and quickly use the judgment and decision models developed in the minds of experts or decision makers, and stored as expert systems or decision models; and (e) more reliably and inexpensively record and retrieve information about the content and nature of organisational transactions (Huber 1990). It has also been observed that the use of ICT, especially in net-enabled organisations, can improve individual business processes while also enabling integration and synthesis across disparate physical and organisational boundaries (Straub and Watson 2001).

That ICT indeed benefits firm performance has been well supported by empirical research. Bresnahan *et al.* (2002), for example, found that a positive association exists between aggregated measures of technological ICT use and organisational performance. Hitt *et al.* (2002) found ERP adoption to be associated with higher sales, return on assets, inventory turnover, profit margin and financial market valuation.[5] In view of extant support for ICT's performance benefits, replicating such a test is not a major objective of this study, although it is still of interest to examine the relationship's applicability in the Chinese setting. A more important reason for conducting the test, as explained further below, is that it is necessary for identifying ways by which ICT affects MAC's firm performance effect (e.g. whether ICT mediates MAC's effect). Thus, we hypothesise:

H2: There is a positive effect of ICT use on firm performance.

3.3. *The impact of MAC on ICT*

The accounting literature has explicitly recognised MAC and ICT as different but mutually supporting domains of corporate operations: ICT borrows from accounting to provide relevance, whilst accounting borrows from ICT to provide connectivity (Dechow *et al.* 2007). It has long been a practical reality that the accounting function can hardly be performed without the aid of ICT and that ICT has become a platform for increasingly complex accounting systems, implying that increased use of complex MAC needs greater ICT support. Meanwhile, developments in the accounting field have broadened the potential uses of ICT. Both cases suggest that adoption of a new MAC often creates a new demand or need for change in ICT and that increasing the complexity of MAC generates a need for more sophisticated ICT applications. By increasing an organisation's data storage, transmission and processing capacity (Huber 1990), ICT can provide the needed infrastructure for supporting more complex MAC applications (Dechow *et al.* 2007).

Empirically, Doran and Walsh (2004) have found Irish companies' adoption of several cutting-edge MAC techniques to be supported by the use of ERP. In the case of the BSC, adoption of this practice is seen to induce greater use of ICT (Inamdar *et al.* 2002, Papalexandris *et al.* 2005). Liu and Lord (2006) document how a Chinese company's adoption of budget management techniques created a need for a computer-based enterprise-wide information system. Taken together, these prior studies suggest that increased use of MAC will increase the demand for support from ICT applications:

H3: There is a positive effect of MAC use on the use of ICT.

3.4. *The mediating role of ICT in MAC's performance effects*

We expect that ICT would serve as the mediator for the link between MAC and firm performance rather than MAC mediating the performance effect of ICT. This is based on our reasoning in developing H3 that whilst ICT supplies the information processing and connectivity tools, it is

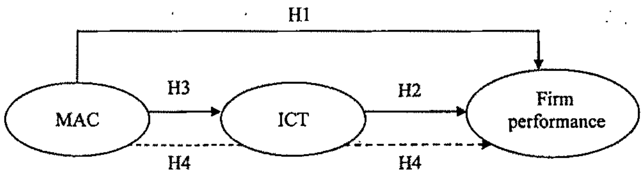

Figure 1. Hypothesised linkages among variables: MAC = management accounting and controls; ICT = information and communication technology.

the MAC applications that provide the content and structure of data collection and reporting to support management. It follows that ICT would serve as a mechanism through which the capacities of MAC can be leveraged to improve firm performance (cf. Banker *et al.* 2008, p. 7). Thus we hypothesise:

H4: ICT mediates MAC's effect on firm performance.

To further clarify the linkages among MAC, ICT and firm performance that we propose to examine, Figure 1 depicts the hypothesised interrelationships amongst these variables.

4. Methods and data

For efficiency of presentation, we will first present the model used for hypothesis testing. We will then explain how each variable was measured and the reasons for its inclusion.

4.1. *Model*

Our model consisted of two structural equations which included both the focal variables and a number of control variables. The latter help to account for the influences of other factors (including ones unique to the Chinese setting) so as to facilitate focusing on the effects of ICT and MAC.

$$\begin{aligned}\mathrm{ICT} = {} & \text{б}_1 + \text{б}_2\mathrm{MAC} + \text{б}_3\mathrm{COMPET} + \text{б}_4\mathrm{STRAT} + \text{б}_5\mathrm{ForeignOwn} + \text{б}_6\mathrm{SIZE} \\ & + \text{б}_7\mathrm{INDUST} + \varepsilon_3\end{aligned} \tag{1}$$

$$\begin{aligned}\mathrm{PERFORM} = {} & \delta_1 + \delta_2\mathrm{ICT} + \delta_3\mathrm{MAC} + \delta_4\mathrm{StateOwn} + \delta_5\mathrm{MgtOwn} + \delta_6\mathrm{LEVG} \\ & + \delta_7\mathrm{TANG} + \delta_8\mathrm{SIZE} + \delta_9\mathrm{INDUST} + \varepsilon_4\end{aligned} \tag{2}$$

where:

PERFORM = firm performance;
ICT = extent of ICT usage;
MAC = extent of MAC usage;
COMPET = level of market competition;
STRAT = strategy, 1 for build strategy and 0 otherwise;
StateOwn = state ownership as a proportion of total equity ownership;
ForeignOwn = foreign ownership as a proportion of total equity ownership;
MgtOwn = managerial ownership as a proportion of total equity ownership;
LEVG = leverage;
TANG = tangible assets as a proportion of total assets;
SIZE = natural log of total assets; and
INDUST = industry dummy, 1 for manufacturing and 0 otherwise.

4.2. *Data collection*

Because information on the use of ICT and MAC, market competition and firm strategy is not publicly available, we collected these data with a questionnaire survey. The questionnaire was first developed in English and then translated into Chinese following Brislin's translation–back translation method (1986). Feedback from interviews with 19 senior accounting and finance managers of five Chinese companies (not included in the sample) and a leading Chinese MAC educator and researcher who serves on the boards of directors of four companies was used to finalise the instrument. Data on the other variables were obtained from the sample companies' publicly available financial reports.[6]

We targeted all listed companies from seven areas of China: Guangdong, Fujian, Heilongjiang, Jiangsu, Shaanxi, Sichuan and Tianjin. These geographically dispersed areas span different levels of economic development. Shaanxi and Sichuan are in the west of China. Both have been identified by China's central government as being economically less advanced than Fujian, Guangdong, Jiangsu and Tianjin from the southern and eastern regions, and Heilongjiang in the north-east.

A copy of the questionnaire was sent to the chief accountant or finance director of each company.[7] A total of 219 usable responses were received out of 337 sent, representing a rather high overall response rate of 65%. The regional response rates ranged from 56 to 83% except for Shaanxi's 20%.[8] Of the completed responses, 57.53% were from firms in the manufacturing sector; the rest were dispersed among 12 other sectors as defined by the China Securities Regulatory Commission's industry classifications. All of the respondents were senior executives and all but four were financial controllers or chief accountants. On average, they had worked in their current companies for 8.91 years and occupied their current positions for 3.9 years. Thus they should be well qualified to answer the questions.

To test for non-response bias, we compared the responding and non-responding firms' total assets and percentages of share ownership by the state, management and foreign shareholders.[9] There was no significant difference (at $p = 0.05$) across these characteristics, suggesting that there were no fundamental differences between the respondents and non-respondents.

4.3. *Variables and measurement*

Bisbe *et al.* (2007) have explained that in theory-based empirical research, theoretical constructs can be translated into observable variables using a reflective or a formative approach. In a reflective approach, constructs are operationalised with a sample of interchangeable measurement items or indicators that may co-vary. In contrast, a formative approach requires that the constitutive indicators of a theoretical construct be identified. The construct is seen as being described by a census of these indicators. Thus, under a reflective model, removing a measurement item may not induce misspecification whereas under a formative model, omission of a constitutive item would cause the construct to be mis-specified. As explain below, except for the variables obtained from publicly available sources, our operationalisation of the constructs in Equations (1) and (2) (e.g. ICT, MAC) followed the reflective approach.

4.3.1 *Firm performance (PERFORM)*

Following a widely used approach in the management accounting literature (e.g. Bisbe and Otley 2004), we asked for respondents' perceptions about seven aspects of their firms' performance within their industry (1 = 'far below average', 3= 'about average' and 5 = 'far above average'). They are (1) cost efficiency; (2) customer satisfaction; (3) employee morale, job satisfaction and commitment; (4) on-time delivery to customers; (5) innovativeness; (6) continuous improvement; and (7) overall performance. This way of operationalising firm performance is reflective because while our list of dimensions is rather comprehensive, it still only represents a sample of the aspects on which firm performance can be measured. Furthermore, some of the measured dimensions may co-vary (e.g. lower employee morale may lead to lower customer satisfaction and lower cost efficiency).[10] A principal components analysis indicated that the seven components yielded one factor with an eigenvalue of 3.841 and Cronbach's alpha equal to 0.857. These statistics indicate that the components are highly internally consistent and reliable (Nunnally 1978).[11]

4.3.2 *Use of ICT (ICT)*

Prior studies have measured ICT primarily in two ways: availability and use. The former focuses on expenditures for, or availability of, specific hardware, software and communication facilities, while the latter would collect data on how ICT is used for different purposes. We adopted the second approach for the following reasons. First, hardware and software have become increasingly integrated, making it difficult to separately identify the components. Integration also makes it inappropriate to treat the components in isolation. In addition, some hardware and software differ only in name but not in function, such that if we had asked respondents to name their firms' specific hardware and software, we could have artificially created missing values unless we could give respondents an exhaustive list of specific hardware and software. Doing so would face the challenge that some software or systems are developed in-house and would be unknown to us. Finally and most importantly, whilst a company could have many ICT resources, some may be for purposes other than supporting managerial reporting functions (e.g. leisure, training).

We asked respondents to indicate on a 1 (= 'not at all') to 5 (= 'very extensively') scale the extent to which their companies currently applied ICT for each of the following purposes (Panel B of Table 1): to collect and analyse data; support product costing; decision making; planning and control; and business processes. A principal components analysis of these five items produced one factor (ICT hereafter) with an eigenvalue of 4.129 and Cronbach's alpha equal to 0.937.

4.3.3 *Use of management accounting and control (MAC) techniques*

The list of MAC techniques was generated by referencing major English and Chinese texts in management accounting and controls (e.g. Sun *et al.* 1998, Merchant and Van der Stede 2003, Hilton 2005) and survey studies of practice in North America (e.g. Foster and Young 1997, Garg *et al.* 2003, Lawson *et al.* 2003), Europe (e.g. Kennedy and Affleck-Graves 2001, Speckbacher *et al.* 2003) and China (e.g. Firth 1996). We limited our focus to 13 techniques that are generally held to benefit organisational performance through facilitating planning, management control, product costing and cost management: ABC, ABM, CVP, standard costing, target costing, Kaizen costing, value chain analysis, operational budgeting, discounted cash-flow-based capital budgeting, economic-value-added (EVA)-type performance measures, responsibility accounting, integrated performance measurements and performance-based compensation.

A point worth noting about the 13 MAC techniques is that they span those that have long been in the (Western) management accounting literature (e.g. CVP, standard costing) and those of more recent vintage (e.g. ABC/ABM, integrated performance measures). This

Table 1. Descriptive statistics ($n = 219$).

Panel A: Firm performance (Cronbach's $\alpha = 0.857$)	Mean	Std. dev.	Min	Max	Factor 1[a]
Aggregate firm performance	3.644	0.587	1.571	5.00	
Cost efficiency	3.210	0.773	1.00	5.00	0.439
Customer satisfaction	3.795	0.760	2.00	5.00	0.678
Employee morale, job satisfaction and commitment	3.708	0.746	1.00	5.00	0.767
On-time delivery to customers	3.863	0.710	1.00	5.00	0.775
Innovativeness	3.589	0.891	1.00	5.00	0.835
Continuous improvement	3.749	0.844	1.00	5.00	0.819
Overall performance	3.598	0.858	1.00	5.00	0.794

Panel B: Use of ICT[b] (Cronbach's $\alpha = 0.937$)	Mean	Std. dev.	Min	Max	Factor 1[a]
ICT for data collection and analysis	3.018	1.260	1.00	5.00	0.883
ICT for supporting product costing	2.699	1.331	1.00	5.00	0.829
ICT for supporting decision making	2.443	1.137	1.00	5.00	0.881
ICT for supporting planning and control	2.616	1.230	1.00	5.00	0.891
ICT for supporting business processes	2.635	1.232	1.00	5.00	0.889

Panel C: Use of management accounting and controls[b]	Mean	Std. dev.	Min	Max	Factor 1[a]	Factor 2[a]
Cost-volume-profit analysis (Cronbach's $\alpha = 0.734$)	3.776	0.896	1.00	5.00	0.615	–
Activity-based costing (Cronbach's $\alpha = 0.903$)	3.006	1.271	1.00	5.00	–	0.977
Activity-based management (Cronbach's $\alpha = 0.911$)	2.645	1.142	1.00	5.00	–	0.915
Standard costing (Cronbach's $\alpha = 0.892$)	2.605	1.065	1.00	5.00	0.477	–
Target costing (Cronbach's $\alpha = 0.898$)	3.361	1.175	1.00	5.00	0.619	–
Kaizen costing (Cronbach's $\alpha = 0.943$)	2.594	1.194	1.00	5.00	0.411	–
Value chain analysis (Cronbach's $\alpha = 0.837$)	3.053	1.130	1.00	5.00	0.595	–
Operating budgets (Cronbach's $\alpha = 0.893$)	4.236	0.840	1.00	5.00	0.782	–
Discounted cash-flow-based capital budgeting (Cronbach's $\alpha = 0.834$)	3.130	1.235	1.00	5.00	0.654	–
Economic-value-added-type performance measures (Cronbach's $\alpha = 0.604$)	3.089	1.117	1.00	5.00	0.547	–
Responsibility accounting (Cronbach's $\alpha = 0.914$)	3.772	1.079	1.00	5.00	0.649	–
Integrated performance measures (Cronbach's $\alpha = 0.741$)	3.457	0.962	1.00	5.00	0.653	–

(Continued)

Table 1. Continued.

Performance-based compensation (Cronbach's $\alpha = 0.749$)	3.702	0.932	1.00	5.00	0.604	–

Panel D: Control variables	Mean	Std. dev.	Min	Max
Competition (Cronbach's $\alpha = 0.675$)	4.113	0.757	1.00	5.00
Competition for inputs	3.910	0.999	1.00	5.00
Price competition	4.269	0.995	1.00	5.00
Competition on product/service quality and features	4.170	0.921	1.00	5.00
Strategy	–	–	–	–
Build = 1	0.603	0.490	0.00	1.00
Hold = 1	0.110	0.313	0.00	1.00
Harvest = 1	0.055	0.228	0.00	1.00
Divest = 1	0.142	0.349	0.00	1.00
State ownership	0.224	0.254	0.000	0.796
Managerial ownership	0.005	0.035	0.000	0.380
Foreign ownership	0.049	0.121	0.000	0.607
Leverage	0.060	0.176	0.000	2.417
Asset tangibility	0.313	0.190	0.000	0.926
Total assets	5.95E+09	4.28E+10	1.14E+08	6.03E+11

[a] Values in the columns headed by 'Factor' represent the factor loadings of each subscale from exploratory factor analysis. Omitted factor loadings were all below 0.200.

[b] Response scale: 1 = 'not at all'; 5 = 'very extensively'.

feature is aimed at covering the major components of the management accounting toolkit and at increasing our likelihood of capturing variation in practice among more vs. less advanced Chinese companies. To dampen respondents' tendency of putting their companies' management practices in a favourable light and to reduce the chances of uninformed responses, we disaggregated each MAC technique into component activities. For example, we decomposed ABC into three interrelated procedural activities: (1) operating processes are analysed and decomposed into their component activities; (2) operating costs are explicitly traced to activities; and (3) product costs are determined using activity-based costing. For each activity, respondents were asked to indicate on a 1 (= 'not at all') to 5 (= 'very extensively') scale the extent to which their companies currently engaged in it. Panel C of Table 1 shows that all of the MAC techniques have acceptable values for Cronbach's alpha, ranging from 0.604 to 0.943 (Nunnally 1978).

Since there may be complementary or substitution relationships across MAC techniques (Fisher 1998), we further undertook a principal components analysis of the 13 techniques. This factor analysis is exploratory in nature due to a lack of theories guiding the correspondence between the latent variables and their measurement items. The analysis separated the techniques into two distinct factors. ABC and ABM loaded onto one factor with an eigenvalue of 1.634 and Cronbach's alpha equal to 0.919, while the remaining 11 techniques loaded onto another factor with an eigenvalue of 5.163 and Cronbach's alpha equal to 0.830. This separation is consistent with the notion that different subsets of MAC techniques may have different foci. In particular, ABC and ABM are generally viewed as focusing on product costing and cost management. We labelled as 'ABCM' the factor comprising these two techniques. The other 11 techniques focus more on planning and management controls. Thus we labelled the second factor 'PMC'.

4.4. Control variables

The following control variables were included because prior theoretical and/or empirical studies have shown that they can affect the use of MAC/ICT or firm performance.

Competition (COMPET). Prior studies by Firth (1996) and O'Connor *et al.* (2004) have found a positive association between Chinese firms' use of a range of 'Western' management accounting techniques and market competition. By analogy, we conjecture that it would also motivate Chinese firms' use of ICT. Following the approach of Dill (1958), Khandwalla (1977) and Baines and Langfield-Smith (2003), we asked respondents to indicate on a scale of 1 (= 'of negligible intensity') to 5 (= 'extremely intense') the competition that their firms faced in obtaining inputs, pricing and product/service quality and features.

Strategy (STRAT). We adopted the 'build, hold, harvest and divest' taxonomy of defining strategy because these descriptions have been extensively tested in previous studies (Govindarajan 1986, Fisher and Govindarajan 1993). Respondents were asked to select the description that most closely described their firms' competitive strategy. We expected strategy to affect the demand for ICT because different strategies require information with different features to guide implementation (Kaplan and Norton 1996, 2001, Langfield-Smith 1997, Chenhall 2003). For example, pursuing an effective build strategy requires decentralisation whereas adopting a successful hold strategy entails centralisation. The former gives business units greater autonomy than the latter (Govindarajan 1986). In turn, this requires greater coordination and communication, which could increase the demand for ICT. Therefore, we expected that firms following a build strategy would make greater use of ICT than ones following the other strategies.

State ownership (StateOwn). In China, lacklustre firm performance often accompanies a substantial level of state ownership because the state tends to put more emphasis on political and social objectives than on profitability (e.g. Xu and Wang 1999, Sun and Tong 2003). This factor also suggests that firms with higher proportions of state ownership would place less emphasis on cutting-edge ICT. StateOwn is the proportion of equity shares owned by the state.[12]

Managerial ownership (MgtOwn). Consistent with the expectation that greater managerial ownership increases the interest congruence between managers and shareholders, Tian (2001) and Li *et al.* (2005) have reported a positive effect of managerial share ownership on Chinese firms' performance. However, Gul and Zhao (2000) failed to find such an association. We included the proportion of common shares owned by firm management but left open whether it would be positively or negatively associated with ICT and firm performance.

Foreign ownership (ForeignOwn). Prior studies of Chinese firms (Qi *et al.* 2000, Sun and Tong 2003) have generally reported an insignificant impact of foreign ownership on firm performance. In the case of MAC techniques and by analogy, ICT, extant research indicates that foreign investors, in particular foreign partners of joint ventures, play an important role in promoting their adoption (Firth 1996, Chalos and O'Connor 2004, O'Connor *et al.* 2004). This may be because foreign investors, being geographically remote, require greater transparency and stricter monitoring of corporate and management performance (Xiao *et al.* 2004). Furthermore, they may be more knowledgeable about, and have incentives to promote, the application of techniques and practices that can increase the return on their investment. We measured ForeignOwn as the percentage of shares (including B-shares, H-shares and non-tradable foreign founders' shares) held by foreign investors.[13]

Leverage (LEVG). While there is little doubt that leverage can affect firm performance, the direction of its effect is a subject of debate. The avenues whereby leverage can affect performance include increasing interest burden, magnifying business operating risk and providing tax shields (e.g. Morck *et al.* 1988). In the case of China, the government's longstanding practice of supporting unprofitable enterprises means that firms with higher leverage may be financially troubled but they may also have greater access to state funding for value-creating activities. Indeed, both Qi *et al.* (2000) and Sun and Tong (2003) have reported a positive impact of leverage on Chinese firms' market-to-book-value ratio but a negative impact on accounting returns. We measured LEVG as the book value of debt divided by the book value of total assets but left open the direction of its expected effects.

Asset tangibility (TANG). The ratio of a firm's tangible assets to total assets is included to control for variations in input structures that may affect capital structure and managerial decisions (Wiwattanakantang 1999). Smith and Watts (1992), for example, have suggested that agency costs may be higher in companies with more growth options and lower tangible asset intensity. In the case of Chinese firms, Tian (2001) has reported a negative relationship between asset tangibility and firm performance.

Firm size (SIZE). We expected firm size to be negatively related to firm performance because larger firms may suffer from more agency problems (Sun and Tong 2003) and may attract more bureaucratic intervention and hence be less efficient than small firms in China (Xu and Wang 1999). Firm size may also affect the use of ICT. As a firm gets bigger, it would increasingly encounter problems of measurement, communication and control, in turn inducing the use of more sophisticated ICT techniques (Merchant 1981, Libby and Waterhouse 1996, Hoque and James 2000). Moreover, large firms tend to have greater access to resources, including internal experts or consultants for ICT implementation. To reduce skewness, we measured firm size as the natural logarithm of a firm's total assets.

Industry (INDUST). Firms in different industries tend to have different input processes, throughputs and outputs and they face different demands, constraints and opportunities (Porter 1980, Hambrick 1981). Industries may also have different patterns of business cycles, costs, revenues and profitability (Wei *et al.* 2005). In response, firms in different industries tend to develop different business models and configurations of internal operations (Spender 1989). Such differences can give rise to different needs for ICT. In our analysis, we distinguished between firms in the manufacturing and non-manufacturing sectors (coded 1 and 0, respectively).

5. Results

5.1. *Descriptive statistics*

Table 1 displays the descriptive statistics of the variables. From Panel A, it can be seen that the sample firms' mean perceived performance is 3.644. Panel B shows that, on a scale of 1 (= low) to 5 (= high), ICT is more commonly used for data collection and processing (3.018) than for less structured decision making (mean = 2.443). Panel C provides descriptive statistics for usage of the 13 MAC techniques. The four most highly used techniques are operating budgeting (mean = 4.236), CVP (mean = 3.776), responsibility accounting (mean = 3.772) and performance-based compensation (3.702). At the low end of the spectrum, Kaizen costing, standard costing and ABM have means of 2.594, 2.605 and 2.645, respectively. In the middle are ABC, EVA-type performance measures, value chain analysis, discounted cash-flow-based capital budgeting, target costing and integrated performance measures, with means of 3.006, 3.089, 3.053, 3.130, 3.361 and 3.457, respectively.

Panel D of Table 1 reports statistics on the control variables. The sample firms' average total assets are just under RMB 6 billion yuan (about 0.82 billion US dollars at the exchange rate of 7.3:1). Perhaps not unexpectedly, the mean level of perceived competition (4.113) is quite high. Just over 60% of the sample companies reported following a build strategy, with the remainder being relatively evenly spread among hold, harvest and divest strategies. State ownership among the sample firms is also quite high (mean = 22.4%). By contrast, both foreign and managerial ownership are relatively low (means = 4.9 and 0.5%, respectively). On the whole, these statistics are comparable to those reported in prior studies (e.g. Sun and Tong 2003, Wei *et al.* 2005, Zou and Xiao 2006).

Table 2 reports the correlation coefficients among the variables. The upper half of this table (above the diagonal) contains Spearman coefficients; the lower half presents the Pearson coefficients. To improve parsimony and to reduce multi-collinearity between the focal variables and their interaction terms, we focus on ICT, ABCM and PMC from the principal components analysis mentioned earlier. Since the patterns are highly similar between the Spearman and Pearson correlations, we only discuss the former. The table shows that ICT has significant and positive correlations with both MAC factors as well as with performance. It is also significantly and positively correlated with the pursuit of a build strategy and firm size. PMC has a significant and positive correlation with ABCM, foreign ownership, competition, build strategy, firm size, membership in the manufacturing industry and firm performance. In contrast, ABCM only has one significant correlation: that with competition. Beyond these pairings, a number of correlations amongst the control variables are also significant (e.g. TANG has a 0.135 correlation with LEVG). However, the point most worthy of note is that the highest correlation coefficient in Table 2 is 0.436 (a Pearson coefficient between ICT and PMC). This suggests that multi-collinearity is unlikely to be a serious problem in the data.

5.2. *Measurement models*

To properly use structural equation modelling for hypothesis testing, we first evaluated the measurement models before examining the structural model. In total, we tested four measurement models: ABCM, PMC, ICT and firm performance.[14] ABCM was measured by the seven items comprising ABC and ABM. The remaining 11 MAC techniques were included in measuring PMC.[15] Three of these techniques, namely, Kaizen costing, standard costing and performance-based compensation, yielded loadings lower than 0.60 in confirmatory factor analysis and were excluded,[16] leaving eight MAC techniques in the measurement model. The same inclusion hurdle also caused cost efficiency to be excluded from the measure of firm performance.

Regarding convergent validity, Table 3 shows that all of the item loadings on ABCM, PMC, ICT and performance are above Hair *et al.*'s suggested threshold of 0.50 (1992).[17] In addition, Panel A of Table 4 indicates that the composite reliability ranges from 0.868 to 0.945. Average variance extracted (AVE) ranges from 0.472 to 0.761. Thus, the measures are reasonably convergent on their respective constructs (Fornell and Larcker 1981). As to discriminant validity, Panel B of Table 4 shows that the square roots of AVE exceed the correlation between any pair of

Table 2. Correlations among variables.

	ICT	PMC	ABCM	State-Own	MgtOwn	Foreign-Own	LEVG	TANG	COMPET	STRAT	SIZE	INDUST	PERFORM
ICT		0.430***	0.146**	0.049	0.041	0.028	−0.096	−0.094	0.103	0.195***	0.137**	−0.110	0.241***
PMC	0.436***		0.406***	0.068	−0.047	0.163**	0.035	0.087	0.138**	0.196***	0.290***	0.141**	0.283***
ABCM	0.150**	0.414***		0.129	−0.063	−0.003	0.068	0.072	0.171**	−0.016	−0.030	0.017	0.030
StateOwn	0.051	0.078	0.115		−0.064	−0.068	0.034	0.049	0.070	−0.006	0.061	−0.073	0.112
MgtOwn	0.000	−0.013	0.007	−0.097		−0.048	0.061	0.042	0.024	0.043	0.098	−0.054	0.081
ForeignOwn	0.053	0.147**	0.006	−0.090	−0.060		0.068	0.104	0.015	0.090	0.161**	0.065	0.031
LEVG	−0.017	0.031	0.054	−0.035	−0.044	0.333***		0.135**	0.044	0.080	0.363***	−0.025	−0.036
TANG	−0.097	0.090	0.077	0.057	−0.072	0.135**	0.182***		−0.109	0.016	−0.080	0.291***	−0.018
COMPET	0.122	0.137**	0.157**	0.035	0.056	−0.009	0.045	−0.183***		0.048	0.140**	0.063	0.216***
STRAT	0.185***	0.206***	−0.016	−0.007	−0.025	0.076	0.067	0.052	0.033		0.175***	0.039	0.178***
SIZE	0.126	0.258***	−0.058	0.049	−0.073	0.159**	0.032	−0.051	0.104	0.157**		−0.183***	0.241***
INDUST	−0.110	0.132	0.025	−0.045	−0.079	0.064	0.037	0.241***	0.082	0.039	−0.194***		0.104
PERFORM	0.244***	0.311***	0.041	0.094	0.140**	0.059	−0.028	−0.022	0.232***	0.174***	0.230***	0.112	

Notes:

(1) **, ***Significance at the 0.05 and 0.01 levels (two-tailed), respectively.

(2) Variables: PERFORM = firm performance (Panel A of Table 1); ICT = mean of five items of information and communication technology (Panel B of Table 1); PMC = mean of 11 MAC techniques (Panel C of Table 1); ABCM = mean of ABC and ABM (Panel C of Table 1); StateOwn = percentage of state ownership; MgtOwn = percentage of managerial ownership; ForeignOwn = percentage of foreign ownership; LEVG = leverage; TANG = tangible assets as a proportion of total assets; COMPET = competition; STRAT = strategy, 1 for build strategy and 0 otherwise; SIZE = natural log of total assets; INDUST = industry dummy, 1 for manufacturing and 0 otherwise.

(3) The upper half (above the diagonal) reports Spearman correlation coefficients; the lower half displays Pearson correlation coefficients.

Table 3. Measurement items and loadings of focal variables.

	Loading		Loading
ABCM		**PMC**	
a1	0.797	CVP	0.567
a2	0.834	TC	0.648
a3	0.856	VCA	0.695
a4	0.878	OB	0.673
a5	0.893	DCF	0.611
a6	0.825	EVA	0.816
a7	0.807	RA	0.688
		IPM	0.763
ICT		**PERFORMANCE**	
i1	0.842	p1	0.508
i2	0.843	p2	0.664
i3	0.915	p3	0.667
i4	0.914	p4	0.873
i5	0.819	p5	0.849
		p6	0.748

Note: ABCM = mean of seven ABC/ABM items; PMC = mean of eight MAC techniques pertaining to planning and management controls; ICT = mean of five ICT items; PERFORMANCE = mean of six firm performance items. See notes to Figure 2 for details.

Table 4. Composite reliability, AVE, and correlations among constructs.

Panel A: Composite reliability and AVE

	composite reliability	AVE
ABCM	0.945	0.709
PMC	0.876	0.472
ICT	0.941	0.761
PERFORMANCE	0.868	0.531

Panel B: Discriminant validity: square roots of AVE and correlation coefficients

	ABCM	PMC	ICT	PERFORMANCE
ABCM	0.845			
PMC	0.434	0.682		
ICT	0.167	0.477	0.871	
PERFORMANCE	0.064	0.363	0.271	0.726

Notes:

(1) ABCM = mean of seven ABC/ABM items; PMC = mean of eight MAC techniques pertaining to planning and management controls; ICT = mean of five ICT items; PERFORMANCE = mean of six firm performance items. See notes to Figure 2 for details.

(2) In Panel B, numbers on the diagonal are square roots of AVE (average variance extracted), while off-diagonal numbers are correlation coefficients.

constructs. Thus, the construct measures are empirically distinct from each other (Fornell and Larcker 1981, Bagozzi *et al.* 1991).

5.3. *Structural model and hypothesis tests*

Having found satisfactory measurement models for the constructs, we tested the structural model for the proposed relationships among them. Figure 2 shows the resulting structural model and the standardised path coefficients.[18] It indicates that our data fit the theoretical model well as

Table 5. Structural model of the relation between MAC and ICT and their effects on firm performance.

	Standardised path coefficients
ABCM → Firm performance	
Direct effect (H1)	−0.076
Indirect effect via ICT (H4)	−0.009
Total effect	−0.085
PMC → Firm performance	
Direct effect (H1)	0.275***
Indirect effect via ICT (H4)	0.076**
Total effect	0.351
ICT → Firm performance	
Direct effect (H2)	0.148**
ABCM → ICT	
Direct effect (H3)	−0.071
PMC → ICT	
Direct effect (H3)	0.522***

Note: **, ***Significance at the 0.05 and 0.01 levels (one-tailed), respectively.

suggested by the fit indices (Kline 2005): Model Chi-square over degrees of freedom (CMIN/DF), 1.50; Comparative Fit Index (CFI), 0.93; Root Mean Square Error of Approximation (RMSEA), 0.05; and Root Mean Square Residual (RMR), 0.05.[19] Table 5 displays the standardised path coefficients for the hypothesised links. It indicates that PMC, but not ABCM, has a positive link to firm performance ($B = 0.275, p < 0.01$ for PMC; $B = -0.076, p > 0.10$ for ABCM). Thus, H1 is partially supported.[20] Consistent with H2, ICT has a positive and significant link to firm performance ($B = 0.148, p < 0.05$). We also find that PMC, but not ABCM, has a positive link with ICT ($B = 0.522, p < 0.01$ for PMC and $B = -0.071, p > 0.10$ for ABCM; one-tailed, as are all significance levels reported in this section).[21] Thus, H3 is partially supported.[22] Finally, H4 is partially supported, as the results indicate that ICT mediates the performance effect of PMC ($B = 0.076, p < 0.05$) but not that of ABCM ($B = -0.009, p > 0.10$). This mediating effect is a partial one, as PMC still has a significant and positive direct effect on firm performance after controlling for ICT. As to ABCM's lack of significant links to both ICT use and performance, we surmise that the former may be due to the relatively low degree of ABC and ABM implementation in our sample (3.006 and 2.645 on a 1–5 scale; Table 1). Firms at the early stages of ABC and ABM implementation usually only engage in activity and cost driver analysis and perform small-scale activity cost assignment; such activities can be accomplished without extensive ICT support (Kaplan and Cooper 1998). Limited use of ABC and ABM may also account for the absence of a significant performance effect, as their coverage may be short of that required for guiding decisions like product mix/pricing and the elimination of non-value-added activities (Foster and Swenson 1997).

5.4. *Further analyses*

5.4.1 *Testing the moderating role of ICT use*

As we had reported earlier, our results indicated that ICT is significantly associated with both MAC and firm performance. These significant links, per se, rule out the existence of a moderating role for ICT in the relationship between MAC and firm performance (Gerdin and Greve 2004). To further ascertain the validity of this conclusion, we followed the practice of previous studies (e.g. Bisbe and Otley 2004, Banker *et al.* 2008) by performing the following regression, in which the

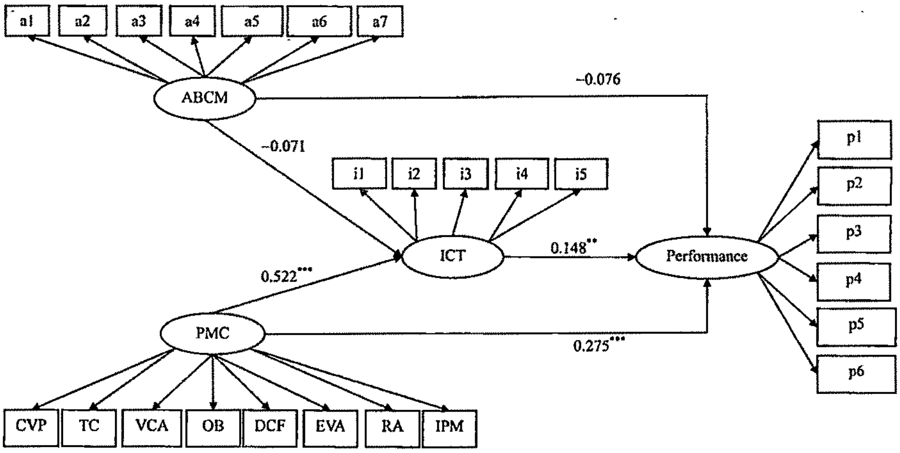

Figure 2. Structural equations model and standardised path coefficients.

Notes:

(1) CMIN/DF = 1.50; CFI = 0.93; RMSEA = 0.05; RMR = 0.05.

(2) **, ***Significance at the 0.05 and 0.01 levels, respectively (one-tailed).

(3) ABCM is measured by seven items: a1–a7, where a1 = operating processes are analysed and decomposed into their component activities; a2 = operating costs are explicitly traced to activities; a3 = product costs are determined using activity-based costing; a4 = decisions about products (e.g. mix, pricing, production method) are based on activity-based product costs; a5 = activity cost information is used to manage production costs; a6 = activity cost information is used to manage non-production costs; and a7 = activity cost information is used for preparing budgets.

(4) PMC is measured by the following eight MAC techniques: CVP = cost-volume-profit analysis; TC = target costing; VCA = value chain analysis; OB = operating budgets; DCF = discounted cash-flow-based capital budgeting; EVA = economic-value-added-type performance measures; RA = responsibility accounting; IPM = integrated performance measurement.

(5) ICT is measured by i1–i5, where i1 = ICT is used for data collection and analysis; i2 = ICT is used for supporting product costing; i3 = ICT is used for supporting decision making; i4 = ICT is used for supporting planning and control; and i5 = ICT is used for supporting business processes.

(6) Performance is measured by p1–p6, where p1 = customer satisfaction; p2 = employee morale, job satisfaction and commitment; p3 = on-time delivery to customers; p4 = innovativeness; p5 = continuous improvement; and p6 = overall performance.

(7) For simplicity, the paths between ICT and the control variables and between firm performance and the control variables are not presented here.

presence of a moderating relationship would be indicated by a significant interaction term between MAC and ICT:

$$\begin{aligned}\text{PERFORM} = {} & \alpha_1 + \alpha_2\text{MAC} + \alpha_3\text{ICT} + \alpha_4\text{MAC}*\text{ICT} + \alpha_5\text{StateOwn} + \alpha_6\text{MgtOwn} \\ & + \alpha_7\text{LEVG} + \alpha_8\text{TANG} + \alpha_9\text{SIZE} + \alpha_{10}\text{INDUST} + \varepsilon_1.\end{aligned} \tag{3}$$

Using PMC and ABCM alternately to represent MAC, firm performance has non-significant associations with both interaction terms: PMC*ICT and ABCM*ICT. This finding supports the inference that ICT does not moderate MAC's effect on firm performance.

5.4.2. *Robustness checks*

Our sensitivity analysis involved substituting accounting measures of performance (return on total assets and return on sales in 2004, 2005, 2006, both 2004 and 2005, or both 2005 and

2006) for our subjective performance measure. We found that ICT neither moderates nor mediates the relationship between MAC and these performance measures.

6. Discussion and conclusions

Although prior studies have examined ICT's and MAC's performance effects, almost without exception they have treated ICT and MAC independently without investigating whether, and how, ICT affects MAC's performance effects (Sutton 2005, Dechow *et al.* 2007). This paper helps to fill in this void by showing that, with some exceptions (most noticeably ABC and ABM), MAC use is positively linked to the use of ICT and that both MAC and ICT have positive direct effects on firm performance. In addition, ICT partially mediates MAC's performance effect. The mediating role implies that ICT is an important means for enhancing the performance effects of MAC. As such, decisions about ICT and MAC deployment should consider how one affects the other rather than treating them as distinct elements. Furthermore, effective management requires evaluating the outcomes of decisions and actions. Our findings suggest that the benefits of ICT and MAC would be mis-estimated if the indirect effects are omitted. In the case of MAC applications, recent studies have observed the lack of attention to their indirect effects and called for efforts to fill in this gap. A few studies have responded to this call (e.g. Bisbe and Otley 2004, Banker *et al.* 2008) by focusing on mediating variables other than ICT, such as product innovation and manufacturing practices. Our study adds to this budding literature by contributing findings on the role of ICT as a mediator in MAC deployment.

With respect to our secondary aim of advancing knowledge on the current state and benefits of Chinese firms' MAC and ICT usage, we find that both MAC and ICT have gained wide adoption in large Chinese firms but there is considerable variation in usage rates both across techniques and across firms' use of each technique. Concerning performance, Duh *et al.* (2009) have examined MAC's effect on listed Chinese firms but they did not consider either MAC's indirect performance effect or the role of ICT. Our study thus helps to develop a more holistic understanding of Chinese firms' MAC and ICT practices and their performance effects. Considering the Chinese government's concerted push for the adoption of ICT and modern management techniques, and Chinese firms' escalating investments in these areas, evaluating whether such investments are generating adequate returns is an increasingly important issue. Yet it has been observed that evaluation systems currently used in China suffer from the lack of lateral thinking because they neglect how ICT works with other resources (Zhang and Zhou 2005). Our findings suggest an important direction for improvement. As Chinese firms pay increasing attention to the integration between their ICT and MAC applications, they could realise even greater returns from these investments.

Given the potential importance of these implications, there is need for further research to validate our findings, to expand the scope of inquiry and to refine the analysis. In planning such efforts, it is important to recognise that the questionnaire survey method has many inherent limitations. These include the inability to probe responses, lack of personal contact between the respondent and the researcher which may inhibit effective communication, and unsuitability to some respondents (Dillman 1978). In addition, cross-sectional data like those in the current study have limited ability to identify cause and effect relationships. The use of longitudinal data or controlled experiments is much more suited to this purpose. There is also room for delving into the nature of processes and questions of 'how' and 'why', and case and field study methods are particularly suited to inquiries of this nature (Yin 1989).[23]

Nevertheless, surveys still have a place in future inquiries because they often are the only feasible means of obtaining the required data (especially ones related to internal systems and processes). In conducting future studies using this approach, the use of multiple informants in each firm, employees from different levels and functional areas, as well as the consideration of other firm attributes (e.g. centralisation, standardisation) can improve the findings' robustness and generalisability. Relating to firm type, we had focused on listed Chinese firms because they tend to be large and are more likely to have high levels of MAC and ICT adoption. Whether the relationships also apply to SMEs is worthy of study. Further insights can result from studying firms from other institutional and national contexts, thereby enabling exploration of variables at other levels of aggregation (e.g. national culture, regulatory environment).

Concomitant with these refinements, there is room for improving how the variables are measured. A case in point is our finding that while a number of techniques relating to planning and management controls (PMC) have a positive association with ICT use, those relating to product costing and cost management (ABC and ABM) do not. Similarly, while PMC has a positive direct performance effect as well as an indirect performance effect via ICT, no such links are found for ABC/ABM. In discussing these results earlier, we had suggested that the non-significant findings for ABC/ABM may be due to our sample firms being at the early stages of ABC/ABM implementation. They could also be a manifestation that not all MAC techniques or MAC/ICT pairings yield benefits. It is not unreasonable to conjecture, for example, that some MAC techniques have such low information intensity or complexity that they do not require much ICT support. Differentiating among the causes will require both a broader sample and capturing more facets of each MAC and ICT application. For example, this study has not distinguished among MAC and ICT of different qualities and/or extensiveness. As a result, our measures of these variables are subject to noise. One firm could have a very rudimentary ICT system whereas another could have implemented all cutting-edge packages. Yet if both of these firms made use of their available ICT resources to the same extent, they would be assigned the same ICT usage score in our analysis even though ICT is likely to play a much bigger role in the latter firm.[24] Likewise, firms may differ in the range of operations to which they have applied a given MAC technique (e.g. whether ABC is applied only to production costs, or also to marketing costs; how far down the hierarchy are EVA-type measures used in performance evaluation). Going beyond the technical properties of each MAC and ICT technique, a number of recent studies have found that they may be used differently across firms with different organisational strategies, priorities and configurations (Dechow and Mouritsen 2005, Quattrone and Hopper 2005). There is room for future research into how different ways of using ICT and MAC may affect their performance impacts. Finally, the application of MAC and ICT involves not only technological factors but also organisational processes and interpersonal relations (e.g. Shields and Young 1989, Duh *et al.* 2006). Much room remains for future research into the facilitators of, and impediments to ICT and MAC implementation as well as how these factors affect the relationships found in this study.

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The authors are indebted to the Editor and two anonymous reviewers for many helpful suggestions for improving this paper.

Notes

1. It is also possible to investigate whether MAC mediates or moderates the performance effects of ICT. We thank an anonymous reviewer for pointing out the importance of laying out these alternatives and advising us to focus on the role of ICT in the relation between MAC and firm performance. Apart from mediation, in the results section, we also present findings from testing the moderation approach.
2. For example, Banker *et al.* (2008) have investigated how ABC indirectly affects firm performance via the implementation of world-class manufacturing (WCM) practices. They found that ABC use has no direct performance effect, but there is a positive and significant indirect one acting

through WCM techniques. This finding suggests that an unbiased assessment of ABC's effects requires going beyond direct effects to also consider indirect avenues of influence. However, Bisbe and Otley (2004) found that the interactive use of management control systems did not have an indirect performance effect via product innovation. With empirical findings on MAC's indirect performance effects still being scarce, our findings can help to increase understanding of the phenomenon.

3. For example, the iron and steel industry in China spent RMB 2.48 billion yuan on ICT in 2005 (US\$1 = RMB 7.3 yuan, approximately), representing a growth of 10.6% over the spending in 2004 (from http://www.ccwresearch.com.cn). A survey of large firms shows that the average spending per firm on ICT in 2002 alone was 17.51 million yuan whereas the cumulated ICT spending per firm up to that point was 67.83 million yuan (Song 2005).
4. For a fuller discussion of MAC applications in China since 1949, see Chow *et al.* (2007).
5. For a fuller review of empirical evidence on ICT's performance effects, see Melville *et al.* (2004, pp. 299–300, 302–303).
6. For parsimony, the questionnaire is not reproduced here, but its contents are summarised in Table 1. A copy of the instrument can be obtained by contacting the first author. Further details about the instrument and method, as well as an analysis of part of the data, are available in Duh *et al.* (2009).
7. Chief accountants or financial controllers in China are equivalent to finance directors in the UK or chief financial officers in the USA. Emails were used to deliver the survey in all areas except Shaanxi, where less developed telecommunications called for the use of hard copies.
8. The results were not qualitatively affected by whether the Shaanxi firms were included, and they are retained in the empirical tests.
9. The ownership percentages are part of Equations (1) and (2) and serve as control variables. The rationale for their inclusion is explained further below.
10. Our operationalisation of ICT and MAC (discussed below) also is reflective for the same reasons.
11. As a robustness check, we also used accounting ratios to proxy for firm performance. More details are provided in the further analysis section.
12. Data obtained from firms' publicly available reports (e.g. ownership, industry and firm size) were collected from the 2004 reports to coincide with the year that the survey data were collected.
13. See Chow *et al.* (2007) for more information on the different classes of Chinese company ownership shares.
14. Our structural equation modelling (SEM) was performed with the AMOS 5 software. A number of prior management accounting studies also have used SEM. Examples include Baines and Langfield-Smith (2003) and Banker and Mashruwala (2007).
15. Note that PMC is a second-order measurement model as PMC is measured by each of the MAC techniques, which are further measured by their respective measurement items.
16. In testing measurement models, item loadings in confirmatory factor analysis that are statistically significant and exceed 0.70 are conventionally suggested to achieve convergent validity, though Hair *et al.* (1992) have suggested that loadings higher than 0.50 are acceptable. As a compromise we used 0.60 as the cut-off.
17. Excluding the item with a 0.508 loading from measurement does not affect our measurement model evaluation and structural model testing results.
18. For parsimony, the control variables are excluded from this diagram.
19. Suggested values to attain reasonable fit are: CMIN/DF = up to 3 or even 5; CFI > 0.90; RMSEA = 0.05–0.08; and RMR < 0.10.
20. With respect to the control variables' effects on firm performance, management ownership, size and industry all have positive and significant coefficients (0.209, 0.149 and 0.153, respectively; $p < 0.05$). The coefficients for state ownership, leverage and tangible assets are not significant ($p > 0.10$).
21. Regarding the control variables, both competition and strategy have positive and marginally significant links with ICT (coefficients are 0.084 and 0.100, respectively; $p < 0.10$, one-tailed). The coefficients for foreign ownership and size are not significant ($p > 0.10$), while the coefficient for industry is negative and significant ($-0.215; p < 0.01$). The negative coefficient for industry suggests that manufacturing firms as compared to non-manufacturing firms use ICT less extensively, though we cannot dismiss an effect from how we have measured ICT use. In the discussion and conclusions section, we suggest ways to further refine measurement of our constructs.
22. Although a causal relationship between MAC and ICT can be posited, our empirical test is based on cross-sectional rather than longitudinal data, and thus cannot support definitive inferences on whether such a relationship exists. We address this limitation further in the discussion and conclusions section.

23. Birnberg *et al.* (1990) compare the strengths and weaknesses of different data collection methods and suggest that each has a role to play in advancing the understanding of the phenomena.
24. We thank an anonymous reviewer for alerting us to this measurement issue.

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The pricing of industry specialisation by auditors in New Zealand

DAVID HAY[a]* and DEBRA JETER[b]

[a]*Department of Accounting and Finance, University of Auckland Business School, Private Bag 92019, Auckland 1142, New Zealand;* [b]*Owen Graduate School of Management, Vanderbilt University, Nashville, Tennessee, USA*

A number of research papers present evidence of fee premiums paid to specialist auditors. In this paper, we explore for listed and unlisted New Zealand firms not only the question of whether such premiums exist, but perhaps more importantly why they exist. We find evidence of fee premiums for auditor specialisation defined at the city level but not at the national level. We extend testing to examine the issue of self-selection of auditors by clients; we examine several different industry classification schemes and a number of different specialisation measures; and we consider the issue of portfolio specialists. We find from these additional tests that self-selection does not account for the existence of specialisation premiums; various alternative classification schemes all result in premiums at the city level; and portfolio specialists also earn fee premiums when portfolio specialisation is measured at the city level. We find that these specialist premiums apply most consistently to larger client firms and to low-risk firms. We consider various explanations and conclude that this result is consistent with non-specialist auditors providing discounts to attract desirable clients. Desirable clients – those that are large or low risk – are not able to negotiate fees as successfully with auditors who have differentiated themselves via industry specialisation.

Keywords: auditing; audit fees; auditor specialisation; differentiation in audit market

1. Introduction

A large body of evidence (see, e.g. Craswell *et al.* 1995, Hogan and Jeter 1999, Knechel *et al.* 2007) suggests that audit firms are desirous of acquiring specialisation skills and being known as industry specialists. The issue has been widely examined in research, but with some inconsistencies and uncertainties in the results. We examine this issue further in New Zealand, a setting that has advantages in data availability and in the nature of the market for auditing services.

The Government Accounting Office (GAO 2003) in the USA pinpointed 'the desire to increase industry expertise' as one of the reasons for the mergers of the Big CPA firms into the

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*Corresponding author. Email: d.hay@auckland.ac.nz

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current four firms. The importance to firms of industry specialisation has also been discussed in recent reports by the Financial Reporting Council[2] (FRC 2006) in the UK and the GAO[3] (GAO 2008). Potential benefits, from the auditors' perspective, include the ability to earn higher profits through either (or both) higher fees or lower production costs and the ability to attract clients by being known as an industry expert.

Using data from settings as diverse as the USA, Australia and Hong Kong, a number of studies (DeFond *et al.* 2000, Ferguson *et al.* 2003, Francis *et al.* 2005) have presented evidence that industry specialist auditors earn a fee premium. A common assumption in studies finding evidence of a specialist fee premium is that the premium relates to the reputation of the auditor and reflects a return demanded by the auditor investing in industry-specific expertise (Craswell *et al.* 1995, among others). Other explanations such as market power have also been considered and we discuss these later in the paper. The body of evidence on fee premiums, however, remains inconclusive as a number of other studies found little or no evidence of a fee premium (Palmrose 1986, Ferguson and Stokes 2002), or found evidence of such a premium only for certain subsets of firms (Craswell *et al.* 1995, only for large clients). We help to resolve these inconsistencies by extending testing to examine the issue of self-selection of auditors by clients; we also consider the effect of specialisation on different sectors of the market; we examine several different industry classification schemes and a number of different specialisation measures; and we consider the issue of portfolio specialists. We find that self-selection does not account for the existence of specialisation premiums; various classification schemes all indicate premiums at the city level and not at the national level; and portfolio specialists also get fee premiums when portfolio specialisation is measured at the city level.

We further find that specialist premiums apply primarily to larger client firms and to low-risk firms. This result is consistent with auditors without specialist expertise in an industry being forced to offer discounts[4] if they wish to attract these desirable clients; these clients are not able to negotiate fees as successfully with auditors who have differentiated themselves via industry specialisation. One implication of this finding is that any clients choosing the non-specialist in order to benefit from the 'discount' would also forego the differentiated service, perhaps because the client is sufficiently strong that it does not need to signal quality or otherwise take advantage of the added expertise of a specialist auditor. Taken together our findings are more consistent with product differentiation than with monopoly power by auditors, and with the exercise of bargaining power by clients, although only in the non-specialist market.

We use a data-set of New Zealand firms to explore industry specialisation by auditors. The New Zealand setting provides us with numerous advantages, as we have access to data from a broader range of the market for audit services, including unlisted companies as well as listed. New Zealand is one of a number of relatively small countries in which an active audit market exists and the institutional arrangements are similar to those in other Western countries, providing sufficient opportunity to examine various issues of specialisation with results that can be generalised to other settings. For example, it is relevant to both small and larger countries to consider whether the phenomenon of auditor specialisation premiums also applies in a small country, or whether small size virtually eliminates the rewards for auditors from investing in specialisation. The spatial nature of New Zealand also includes a smaller number of major cities, so that there are more opportunities (and ease) for transference of audit expertise between offices, providing a stronger test of this aspect of specialisation. Further, many previous studies have not been able to include a complete measure of auditor industry share, as data for the subsidiaries of overseas companies (such as the international motor companies or oil companies) are not available and thus not included. In New Zealand these overseas-owned companies must disclose their audited financial statements. We are able to include unlisted as well as listed firms to obtain a more accurate measure of industry market share. We further examine the effects of specialisation within a variety of segments of the market for audit services (large/small, listed/unlisted, growth/non-growth, high-risk/low-risk, subsidiary/non-subsidiary).

We provide insight into the following questions related to industry specialisation by auditors:

(1) Do firms pay a fee premium for national and/or city-specific specialist auditors and which designation is more important in our setting?
(2) Do all categories of firms with specialist auditors pay a fee premium, or only certain subsets of firms?
(3) If the premiums affect only certain subsets of firms, what does this tell us about the benefits of specialisation and the pricing of specialisation expertise by auditors?

We present evidence that firms in our sample of listed and unlisted New Zealand clients do pay fee premiums to specialist auditors and that such premiums are observed almost exclusively at the city rather than national level. We use a range of different specialisation measures and classification schemes. We find that these fee premiums apply consistently, regardless of our specification, to larger client firms and to low-risk clients. Our results suggest that in the determination of audit fees, the premium for specialisation arises because power shifts to the client when the auditor is a non-specialist and the client possesses one or both of the attractive qualities of large size or low risk.

Discounts (lower audit fees than an industry specialist would charge) are provided by non-specialist audit firms to attract and retain desirable clients (large or low-risk clients). This suggests that the term 'fee premium' as commonly defined in the literature might be better viewed as the absence of a discount, at least in our setting. Although the difference is simply one of perception, there are several reasons why it is more useful to view the fee difference in terms of a discount for non-specialists rather than as a premium for specialists. Since specialists audit a large portion of the market in many cases, the fees charged by industry specialists are the norm, not the exception. It is more plausible and consistent with business practice that a client will negotiate a discount with a supplier than that the supplier can negotiate a premium; further, such a discount is consistent with the results presented here when the data are partitioned into subsets, as significant fee differences apply primarily to those categories of clients that are likely to be most desirable from an auditor's perspective.

The remainder of this paper is organised as follows. Section 2 provides an overview of the prior literature and our motivation for the current study. Section 3 discusses our setting and research design. Section 4 describes the sample and results. Section 5 summarises and concludes.

2. Background and prior literature

Issues related to auditor specialisation have been studied for many years. Previous studies examining audit fees find some evidence of a premium for auditor industry specialisation (at either the city or national level, or in some cases both), generally assumed to indicate that clients value an auditor with greater expertise in their industry enough to pay more for such services; the issues of market power and related premiums have also been considered and not ruled out.[5]

The argument for the existence of specialist premiums most commonly presented in prior research is that clients hire specialist auditors because of their superior reputation. Under this argument, clients by their choice of a specialist auditor provide a signal of the quality of their reporting, which may lead to other benefits such as a lowered cost of capital. Researchers (e.g. Watts and Zimmerman 1986) argue that the demand for auditing services arises from conflicts of interest among managers, creditors and outside shareholders. Given the existence of such agency issues, managers and entrepreneurs have incentives to reduce agency costs through high-quality monitoring. Titman and Trueman (1986) present a model wherein firms with favourable information signal their quality by selecting auditors that are costly, but that provide relatively more precise information about the firms' final cash flows. In the context of these theories, a specialist auditor fee premium could be interpreted as the price paid, by clients signalling their quality, for an auditor of superior reputation. If the reputation theory is the dominant reason for the choice of industry specialists, we predict that fee premiums would be more likely if the client firm is concerned about agency issues, is in the public eye, or is planning to enter the public debt or equity markets in the near future.

Auditors also have incentives to develop a superior reputation. Prior studies (Mayhew and Wilkins 2003, Casterella *et al.* 2004) have applied the model from Porter (1985) to suggest that auditors have incentives to specialise in order to offer a differentiated product or service and to establish themselves as high-quality providers. They then strive to create a competitive advantage in the market for audit services over non-specialist auditors through one of several channels: recognition of their superior reputation, cost reductions, value provided in the quality of advisory services and assurance or monitoring, or some combination of these. Mayhew and Wilkins (2003) and Cahan *et al.* (2008) present arguments that these investments are most beneficial in offering services to a fairly homogeneous group of clients such as same-industry firms.

Fee premiums could also suggest monopoly pricing due to the market power of the small number of large audit firms. The issue of whether higher audit fees represent higher quality or market power has been present in the literature since its inception (see, for example, Simunic 1980) and probably cannot be completely resolved since both effects are likely to apply simultaneously. That is, desirable clients (larger, less risky companies) choose desirable audit firms (industry specialists). These clients may demand some level of higher audit quality, but the auditor is also in a position to extract a rent for that service. These clients could choose a non-specialist auditor and avoid the 'monopoly' rent, but in that case cannot obtain the differentiated service. The use of a differentiated service to achieve market power is part of the strategy of being a specialist supplier.

Another possible reason for choosing a specialist is that clients believe specialist auditors to provide superior services in other dimensions such as advice offered during the course of the audit. In their survey of the 500 fastest-growing private companies in America, Addams *et al.* (1996) found the following to be the highest and second highest ranked factors in auditor choice: (1) personal relationships, including the relationship between the CPA firm's key people and the company's key decision-makers, as well as confidence in the audit firm; and (2) technical expertise, made up of the quality of the technical expertise of the assigned team and technical expertise in accounting as well as industry-specific experience. Addams *et al.* (1996) have suggested that client firms were more motivated in choosing or switching auditors by their perception of the auditors' helpfulness in addressing company concerns (e.g. helping the company grow, foreseeing problems, understanding the client's business) than by audit fees or by their perception of the auditors' reputation or professionalism. Beattie and Fearnley (1995) also found that the 'quality of working relationship with partner' ranked third highest in importance of factors that clients consider in choosing auditors and that 'guidance on accounting' and 'advice to management' also ranked highly. If these relationship and expertise aspects play an important role in the hiring of specialist auditors, we would expect that smaller clients would be more likely to benefit, and hence to pay fee premiums, than larger clients with their own staffs of experts.

Another feasible explanation for why clients choose specialists is that specialist auditors experience economies of scale in auditing clients in the industries of expertise (e.g. regulated industries) and may pass a portion of these economies on to their client firms (see Eichenseher and Danos 1981, Danos and Eichenseher 1982). In this case, clients might actually benefit by hiring a specialist auditor without paying a fee premium and, in fact, could enjoy a fee discount. If we present evidence of no fee premiums (or of discounts) to specialist auditors in our setting, we would conclude that our results are most consistent with the economies of scale argument. It may also be the case that certain clients pay a fee premium because they receive valuable advice along with the audit. This view will be supported if smaller firms are associated with fee premiums.

We also consider an additional explanation: the possibility that auditors will offer more favourable pricing to more attractive clients, which include large or growing clients and low-risk clients. It is possible that (a) premiums for specialisation generally apply, but (b) these premiums are particularly evident for desirable groups of clients, as non-specialists must offer lower fees to attract these clients, creating a significant differential in pricing by specialists and non-specialists. The advantages to the clients of specialists enable specialist auditors to attract these clients without yielding to competitive pressure to lower negotiated prices. Whether these pricing differentials are viewed as premiums earned by specialists or as discounts offered by non-specialists is discussed further later in this paper.

The existence of specialisation by auditors is well accepted and has been demonstrated by Kwon (1996), Hogan and Jeter (1999), Pong (1999) and Bigus and Zimmermann (2008). Carson (2009, p. 356) shows that each of the Big 4 firms refers on its website to its use of industry specialist audit teams.

The effect of specialisation is less clear. Studies of the effect of specialisation on audit fees have examined a wide variety of settings and have had very mixed results. There are 15 studies reporting a premium;[6] five reporting a discount;[7] nine finding that there is no significant association;[8] and three in which the results are mixed depending on other factors.[9] Many of the studies also include some additional mixed results.

Researchers have examined a wide variety of different markets for audit services in order to establish the conditions under which a premium is found. These include different countries (USA, Australia, Hong Kong, UK, Canada) and specialised markets such as financial institutions, municipalities and pension plans. It continues to be valuable to extend the range of settings in which specialisation may or may not have an effect on audit fees, for example, to New Zealand. (The New Zealand setting has many advantages, as discussed in the previous section.)

Empirical studies on this topic commenced with Simunic (1980). Simunic (1980, p. 167) argued that the audit fee is determined by the quantity of auditing and the price per unit of auditing; that price is determined by competition in the market; and where there is monopoly pricing, audit fees will be higher. However, Simunic (1980, p. 188) noted that product differentiation may also take place and that the differentiating factor would be the visibility and brand name recognition of the Big 8 auditors. Francis (1984, p. 135) extended Simunic's testing (1980) and further developed the arguments that the Big 8 firms have invested in developing brand name capital and that they receive higher fees because their audits are recognised as being of higher quality. Palmrose (1986, p. 104) further tested this issue and introduced industry specialisation (using market share as a measure) as a possible determinant of fees. She found a Big 8 fee premium, but no evidence of a fee premium based on industry specialist categorisations. Because the Big 8 audits were associated with greater audit hours, she interpreted her results to be more consistent with higher quality than with monopoly pricing.

Using Australian data, Craswell *et al.* (1995) found that industry specialist Big 8 auditors earn a premium over non-specialist Big 8 auditors (Craswell *et al.* 1995, p. 297). However, their results are quite sensitive to the percentage market share used for the cut-off in their definition of specialisation. The issue was revisited by Ferguson and Stokes (2002) who found that, in the same setting, a premium for specialisation no longer applied after the mergers that reduced the Big 6 firms to the Big 5.

Another issue of long standing in the literature is whether audit firm premiums apply to specialisation at the national level or the local level. This issue relates to the network externalities achieved by large firms and the types of knowledge that is valuable to auditors. Ferguson *et al.* (2003, p. 432) suggest that two views are possible – it is possible that expertise is captured by the firms as a whole and that expertise can be transferred by training, audit programmes, travel, knowledge management systems, video-conferences or contact between partners and experts. It is also arguable that deep knowledge resides in individuals and is limited to specific engagements in which individuals work (Ferguson *et al.* 2003, p. 433). Francis *et al.* (2005, p. 114) argue on the basis of their results that expertise is 'neither strictly local nor strictly national'. Carson (2009, p. 357) divides industry-based knowledge into tacit knowledge – which is intangible, including know-how, experience and motivation – and codified knowledge, which can be recorded and made accessible to others.

Using Australian data, Ferguson *et al.* (2003) found no premium for specialisation at a national level, but a significant premium for being a specialist at both the city level and the national level. Subsequent studies by Francis *et al.* (2005), using US data, and Basioudis and Francis (2007), using UK data, further examined this issue. Francis *et al.* (2005) found premiums for specialisation at a city level but not a national level alone. Basioudis and Francis (2007) found premiums only at the local level. These studies (and some others) suggest that specialist industry expertise may reside at the city or even at the individual audit team level (Ferguson *et al.* 2003, Carcello and Nagy 2004, Francis *et al.* 2005). Since there are arguments for both national and city-level expertise being valuable, and mixed results, this is an issue worthy of further examination.

There is also evidence that specialist auditors (and their clients) benefit from more effective audits. Low (2004), for example, finds that specialist auditors are more flexible and quicker to adjust to needed changes in audit programmes inherited from predecessor auditors. Owhoso *et al.* (2002) present evidence that members of specialist teams are more effective and work in a more complimentary fashion to detect errors than non-specialist teams. Krishnan (2003) finds that industry specialist auditors mitigate earnings management more than non-specialists. Dunn and Mayhew (2004) find industry specialist auditors are associated with higher disclosure quality.

Several studies have examined whether specialist premiums apply to large audit clients only, small clients only, or both. The premium in the Australian market found by Craswell *et al.* (1995) applied only to clients larger than the median. Similar results were reported by Ferguson and Stokes (2002) and Ferguson *et al.* (2003). Results in US studies are mixed. Although some recent studies in the USA (Casterella *et al.* 2004, Huang *et al.* 2007) report a premium that applies only to clients that are smaller than the median, Francis *et al.* (2005) found that premiums were larger for large clients. Casterella *et al.* (2004) suggest that large influential clients are able to negotiate a reduced fee premium. A more recent Australian study (Carson and Fargher 2007) again finds that the premium applies to large (and medium-sized) companies but not to small companies.

Although much of the previous literature documents the existence of specialist premiums, the evidence remains mixed. The issue of why clients choose a specialist auditor, often at a higher cost, continues to be interesting and worthy of further examination. Among the reasons for inconsistent results from prior studies are the following: the effect of banks and mining companies;[10] the variety of settings and periods examined;[11] model specification;[12] variation in the applied definition of a specialist.[13] Significant gaps in this body of literature suggest the need for further study related to: how widespread premiums are internationally; whether premiums are paid for specialisation as identified at the national or the local level; and why certain types of firms are (or are not) willing to pay a fee premium for their choice of a specialist auditor. Our New Zealand setting provides an opportunity to further examine some of these outstanding issues.

3. Motivation and research design

3.1. *New Zealand setting*

The audit market in New Zealand offers the advantage of being sufficiently similar to markets in the USA and other Western countries to allow comparable tests to be carried out and yet different enough to draw distinctions that allow new knowledge to be gleaned. This setting has been examined in previous studies (e.g. Johnson *et al.* 1995, Baskerville and Hay 2006). Here too, the Big 4 firms dominate the market for audit services. Audit fees are a function of client size, risk and complexity, similar to pricing in other Western countries. The market for audit services in New Zealand is also similar in terms of legal requirements and auditing standards to that in other countries examined in previous auditor specialisation research. As in other countries examined in prior studies, auditors are concerned about liability issues and the effect of recent scandals and reforms, although perhaps to a lesser extent.

The country is relatively small. The economy is dominated by the largest city (Auckland) and the capital (Wellington).[14] In this regard, New Zealand is similar to Australia, where 84% of listed companies have their headquarters in three cities (Francis *et al.* 2005). Because of this relatively small size, New Zealand provides an advantageous environment for auditor specialist research with the potential for a clear-cut test of the explanations discussed. Our setting of New Zealand firms appears to be comparable to that of Ferguson *et al.* (2003) and is in fact even more centralised and less geographically dispersed than the Australian audit market. Hence, the transferability of expertise across offices would appear to be relatively easy, suggesting the possibility that national leadership alone might be sufficient in our setting to justify a specialist premium.

In New Zealand, many major companies are unlisted, but their financial reports are available. Our data were collected for the top 200 companies in New Zealand, drawn from an annual Top 200 list published in *Management* (New Zealand) magazine.[15] In addition to listed companies, the data include subsidiaries of overseas companies,[16] co-operatives and companies owned by central and local government.[17] This study also offers the advantage of data for both listed and unlisted companies, enabling us to examine differences in specialisation choices and fees between those groups.

Because New Zealand has a smaller market for audit services and a smaller number of major cities, there is more opportunity to transfer audit expertise between offices, providing a stronger test of the issue of specialisation. Our New Zealand data include a larger part of the market for audit services, as subsidiaries of overseas companies are included, unlike most prior studies. Thus, we can consider whether specialisation affects these companies differently. Other entities apart from listed companies are also included, for example, unlisted companies, privately owned companies and co-operatives. Including all of these entities as well as listed companies allows a more accurate measure of which firms are the specialists in an industry. Including a broader range of entities also allows us to segment the data and conduct tests of whether the different categories are affected differently. Audit fee specialist premiums have been examined in a wide variety of settings in previous studies. The New Zealand setting expands that range, as well as offering the advantages summarised above.

3.2. *Model specification*

Most studies examining the existence (or non-existence) of a specialist fee premium estimate some variation of the following OLS regression (see, e.g. Ferguson *et al.* 2003):

$$F_i = \beta' X_i + \gamma \mathrm{SPEC}_i + \varepsilon_i \qquad (1)$$

where F_i is the audit fee; SPEC_i is an indicator variable that takes the value 1, if the actual auditor is deemed a specialist auditor, and 0 otherwise. The remaining explanatory variables (X_i) capture other client and auditor characteristics that affect fees. A significant positive coefficient for γ in the above model is generally interpreted as evidence consistent with the existence of a specialist fee premium. We perform the following OLS regression to ensure comparability with the results of prior studies on auditor specialisation:

$$\begin{aligned}\text{LAF} = {} & \beta_0 + \beta_1\text{LTA} + \beta_2\text{SSUB} + \beta_3\text{CATA} + \beta_4\text{QUICK} + \beta_5\text{DEBTTA} + \beta_6\text{ROA} \\ & + \beta_7\text{FOREIGN} + \beta_8\text{LOSS} + \beta_9\text{SPEC} + \varepsilon\end{aligned} \tag{2}$$

where:

LAF = log of audit fees (in thousands of dollars);
LTA = log of total assets (in millions of dollars);
SSUB = square root of the number of subsidiaries;
CATA = current assets to total assets;
QUICK = quick ratio;
DEBTTA = debt to total assets;
ROA = return on assets computed as earnings before interest and taxes divided by total assets;
FOREIGN = percentage of foreign assets;
LOSS = indicator variable for presence of a current-year loss;
SPEC = indicator variable(s) for measures of specialisation.

These variables are based on those used in previous studies. CATA as a measure of complexity has been widely used in recent studies (e.g. Ferguson *et al.* 2003, Francis *et al.* 2005, Basioudis and Francis 2007, Carson 2009) and captures the more complicated audit procedures used for current assets such as inventory and receivables. QUICK is a measure of liquidity risk and is also widely used in previous studies (e.g. Ferguson *et al.* 2003, Francis *et al.* 2005, Basioudis and Francis 2007, Carson 2009). Some studies use the proportion of foreign to total subsidiaries as a proxy for the greater complexity caused by having international activities (Ferguson *et al.* 2003), or the proportion of foreign sales (Francis *et al.* 2005, Basioudis and Francis 2007), or do not include a measure for foreign activities (Carson 2009). We consider that the proportion of foreign assets more accurately measures the proportion of an entity's operations that are overseas and more complex to audit.

Alternative models are estimated using national-level specialist measures, city-level specialist measures and both. Consistent with Francis *et al.* (2005), a specialist auditor is identified as the audit firm with the largest market share in each industry. Alternative criteria are also applied, including designating both the first and second-ranked market leaders as specialists. Client firms are classified using the New Zealand Stock Exchange industry classification (NZX). We apply an alternative industry classification, the Australian and New Zealand Industry Classification (ANZSIC) as a sensitivity test.[18] By measuring specialisation at different levels (national vs. city), we provide insight into whether both designations are needed in our setting for specialists to earn fee premiums, or whether one is sufficient (and, if so, which designation is needed). For consistency with prior studies, we exclude companies audited by non-Big 4 audit firms. We do, however, conduct sensitivity tests of results with them included.

In addition, we estimate the models for several subsets of our sample firms in order to distinguish among the various explanations laid out in Section 2 of this paper. In addition to all

New Zealand Top 200 companies in 2003 plus listed firms outside the Top 200, we examine the following subsets: relatively large firms (in the top half of the Top 200); relatively small firms (outside the top half of the Top 200); listed companies; unlisted companies; growth firms (those that have improved their ranking in the Top 200 by 10 places or more); non-growth firms; firms in relatively high-risk industries (proxied by industry volatility); firms in lower risk industries; firms that are subsidiaries of overseas companies; and firms that are not subsidiaries of overseas companies.

In addition to partitioning on size and listing status, we also partition our sample on growth and risk levels. Audit fees might also be affected by choices by the audit firm. For example, it may be that audit firms view growth clients and low-risk clients more favourably, and are willing to negotiate a lower fee for them; and it may also be the case that higher risk firms are charged higher fees, as suggested in prior literature starting with Simunic (1980). To consider the possibility that specialist auditors are influenced by a firm's growth and willing to offer a discount to attract firms with demonstrated recent growth, we partition by documented changes in ranking (in the top 200 firms) during the past year. We also conjecture that the expected volatility in a firm's revenues (associated with future litigation potential) might lead its auditor to charge a fee premium; hence, we partition the sample by the volatility of the industry's revenues as a proxy for litigation risk. As an alternative means of differentiating between high and low-risk firms, we use firm-specific measures based on losses, debt and liquidity. Finally, we partition by a firm's status as a subsidiary of another company. Data for subsidiaries of overseas companies have been unavailable in many prior studies on specialisation. We are interested in learning whether subsidiaries are priced differently from non-subsidiaries with respect to fee premiums (as subsidiaries have less freedom of choice of auditor). These subdivisions of the data allow us to examine which of the explanations for a premium is most consistent with the observations.

3.3. *Self-selection issues*

The above OLS regression should allow for valid inferences if self-selection issues are not prevalent. However, as pointed out in Chaney *et al.* (2004), companies are not randomly assigned to audit firms, but select their auditors. The client and audit firm characteristics that affect auditor choice may be similar to the variables in our fee models. Some analytical studies, including Titman and Trueman (1986) and Hogan (1997), develop theoretical models to explore the self-selection of auditors by clients. In these models, clients with favourable private information choose higher quality auditors despite higher costs. From an econometric perspective, self-selection introduces a bias in the standard OLS regressions. The self-selection problem arises because fees are observable only after a firm has chosen its auditor, while the fees under an alternative auditor choice remain unobserved. This causes the expected error in the standard OLS specification of audit fees to be non-zero and the auditor choice (specialisation) variable to be endogenous. However, Lennox and Francis (2008, p. 1) suggest that there are pitfalls in such an approach. They demonstrate that the selection model can yield quite literally any possible outcome in response to minor changes in model specification. Clatworthy *et al.* (2009, p. 139) also note that self-selection models are highly sensitive to changes in model specification, and that 'conclusions of the premium vanishing when selection bias is controlled for appear premature'. It is very much an unresolved question as to whether self-selection effects make a difference.

To address the self-selection issue, we first estimate separate models for clients of specialist and non-specialist auditors. This enables us to consider one of the arguments advanced by Chaney *et al.* (2004), namely, that slope coefficients on complexity, size and risk might be smaller for higher quality auditors, while the intercept should reflect higher fixed costs to recoup the greater investment in specialisation training. We then apply a treatment effects model using

Maximum Likelihood Estimation to our sample. In the first equation, we predict the choice of a specialist auditor using the same variables as in our fee Equation (1), with the exception that we add a variable for log of non-audit fees and we exclude the Big 4 variable (as all city leaders are Big 4 auditors). In the second equation, we predict fees. We perform a test, using the treatment effects model, to assess whether self-selection is a concern.

4. Results

4.1. *Sample and descriptive statistics*

Our sample consists of New Zealand companies in 2003. The list of the Top 200 companies published in *Management* magazine was used, supplemented by data from the remaining listed companies not in the Top 200. After excluding observations with incomplete data, we are left with 222 observations.

Table 1 summarises our industry specialist data at the national level and lists the industry leaders, as well as the second, third and fourth-ranked auditors based on audit fees. The overall market leader across all New Zealand industries is PwC with 34% of total audit fees, followed by KPMG with 30%. When firms with only one client in an industry sector are excluded, city specialists exist in Auckland and Wellington, but not Christchurch, Dunedin or any other city. Auckland has a specialist in each of the NZX industry codes, while Wellington has a specialist in 11 of 16 codes. The city specialist is an audit firm different from the national specialist in 9 of 27 cases. The extent of concentration varies considerably, although the market leader has more than half of the total market share in 8 out of 16 industries. There are small numbers of companies in some industries and we conduct sensitivity tests to consider whether their inclusion affects our results.

Descriptive statistics for our continuous variables and frequencies for our indicator variables and subset components are reported in Table 2. Big 4 audit firms are chosen by 88% of companies, while 34% are audited by the national market leader for that industry and 32% by the city leader. The ranges and distributions of the values of the variables are approximately as expected, based on those reported in prior studies. Not surprisingly, the companies in our study are smaller than those in the US study by Francis *et al.* (2005), with mean assets of $475 million compared to $1912 million. The other independent variables are comparable to those of Ferguson *et al.* (2003) and Francis *et al.* (2005).

4.2. *OLS regression results*

The audit fee model discussed previously is next estimated for our entire sample and then for various subsets of the data. After excluding companies in the finance industry, clients of non-Big 4 auditors and firms in industries with limited observations (fewer than five companies nationally or three in a city), our sample is reduced to 179 for the national specialist designation and to 174 for the city-level designation.

Results are presented in Table 3. Alternative models were run using national-level specialist measures, city-level specialist measures and both. As previously mentioned, we also used two alternative industry coding schemes: the New Zealand Stock Exchange industry classification (NZX) and the Australian and New Zealand Standard Industry Classification (ANZSIC). Reported results are based on the NZX industry classification, but results using ANZSIC are qualitatively similar.

Overall, we find that: (1) there are no national-level premiums; (2) there are statistically significant city-level premiums; (3) when both city and national specialist designations are included,

Table 1. Top-ranking industry specialists (market share).

Panel A: At the national level in New Zealand

NZX sectors	Total number	Total audit fees	Top-ranked firm	%	Second-ranked	%	Third-ranked	%	Fourth-ranked	%	Big 4
A01 Agriculture & Fishing	18	5279	KPMG	74%	PwC	11%	DTT	7%	EY	7%	100%
A02 Mining	4	249	PwC	60%	KPMG	31%	GT	5%	CDFK	4%	91%
A03 Forestry	10	3890	PwC	38%	DTT	30%	EY	27%	KPMG	5%	100%
A04 Building	7	2540	KPMG	63%	PwC	24%	DTT	13%	–		100%
A05 Energy	21	4823	PwC	37%	DTT	33%	EY	17%	KPMG	10%	98%
A06 Food	20	2323	PwC	44%	EY	25%	DTT	18%	KPMG	13%	100%
A07 Textiles & Apparel	4	611	EY	76%	KPMG	12%	BDO	12%	–		88%
A08 Intermediate & Durables	27	2696	PwC	44%	KPMG	24%	DTT	14%	EY	9%	92%
A09 Property	8	492	PwC	46%	SCW	21%	KPMG	14%	DTT	10%	70%
A10 Transport	5	1817	DTT	50%	EY	21%	KPMG	17%	PwC	12%	100%
A11 Ports	7	492	DTT	48%	PwC	32%	ANZ	8%	EY	7%	87%
A12 Leisure & Tourism	6	889	PwC	52%	KPMG	39%	EY	9%	–		100%
A13 Consumer	40	4257	PwC	40%	EY	25%	DTT	14%	KPMG	12%	90%
A14 Media & Communications	15	4377	KPMG	66%	PwC	17%	EY	9%	DTT	7%	100%
A15 Finance & Other Services	13	4467	PwC	72%	EY	10%	SR	7%	KPMG	6%	91%
A16 Investment	17	910	EY	40%	DTT	27%	KPMG	10%	PwC	10%	88%
TOTAL	222	40,044	PwC	34%	KPMG	30%	DTT	17%	EY	15%	96%

(Continued)

Table 1. Continued.

Panel B: At the city level in Auckland and Wellington

	Auckland						Wellington					
NZX sectors	Total number	Total audit fees	Top-ranked firm	%	Second-ranked	%	n	Total audit fees	Top-ranked firm	%	Second-ranked	%
A01 Agriculture & Fishing	8	4214	KPMG	80%	PwC	9%	3	603	KPMG	44%	DTT	41%
A02 Mining	2	159	PwC	94%	CDFK	6%	2	90	KPMG[a]	86%	GT	14%
A03 Forestry	7	3745	PwC	39%	DTT	30%	2	20	DTT[a]	100%		
A04 Building	2	1500	KPMG	100%			3	307	PwC[a]	66%	KPMG	34%
A05 Energy	9	1717	DTT[a]	59%	KPMG	14%	9	3013	PwC	52%	EY	21%
A06 Food	15	1787	PwC	47%	DTT	22%	2	325	EY[a]	96%	DTT	4%
A07 Textiles & Apparel	4	611	EY	76%	KPMG	12%						
A08 Intermediate & Durables	16	2118	PwC	49%	KPMG	29%	3	163	PwC	39%	DTT	35%
A09 Property	3	229	PwC	70%	KPMG	30%	2	83	PwC	80%	BDO	20%
A10 Transport	4	1744	DTT	53%	EY	22%						
A11 Ports	4	331	DTT	61%	PwC	30%						
A12 Leisure & Tourism	5	877	PwC	53%	KPMG	40%						
A13 Consumer	29	2815	EY[a]	32%	PwC	30%	6	1220	PwC	69%	RGS	18%
A14 Media & Communications	7	645	DTT[a]	50%	PwC	31%	7	3591	KPMG	80%	PwC	11%
A15 Finance & Other Services	9	1205	EY[a]	35%	SR	25%						
A16 Investment	11	601	EY	42%	KPMG	15%	3	287	DTT[a]	61%	EY	39%
TOTAL	135	24,298	PwC	34%	KPMG	30%	44	12,759	DTT	14%	EY	13%

[a] City specialist varies from national.

Note: Names of firms: DTT = Deloitte Touche Tohmatsu; EY = Ernst & Young; KPMG = KPMG; PwC = PricewaterhouseCoopers; SCW = Sherwin Chan & Walsh; BDO = BDO Spicers; ANZ = Audit New Zealand; CDFK = Carlton DFK; GT = Grant Thornton; SR = Staples Rodway.

Table 2. Descriptive statistics ($n = 222$).

	Mean	Median	Std. dev.	Minimum	Maximum
Univariate					
AF	180.38	77.50	363.04	4.00	3000.00
LAF	4.43	4.35	1.18	1.39	8.01
TA	475	115	1163	6.6	10,746
LTA	11.58	11.65	1.91	4.19	16.19
SUB	5.77	3.00	7.06	0.00	40.00
SSUB	1.93	1.73	1.43	0.00	6.32
CATA	0.44	0.45	0.29	0.00	1.00
QUICK	2.93	1.09	9.21	0.04	85.95
DEBTTA	0.20	0.12	0.24	0.00	1.49
ROA	−0.20	0.08	3.88	−57.62	1.42
FOREIGN	0.04	0.00	0.13	0.00	0.79
Frequencies			Number	Per cent	
LOSS			65	29%	
BIG 4			195	88%	
GROWTH			48	22%	
LISTED			120	54%	
HIGHRISK			75	34%	
SUBOS			75	34%	
Specialisation			Number	Per cent of audits	Per cent of fees
Clients of national specialists (market leader)			75	34%	54%
Clients of city specialists (market leader)			70	32%	57%
Clients of national and city leader[a]			56	25%	50%

Note: AF = audit fees in thousands of dollars; LAF = log of audit fees (in thousands of dollars); TA = total assets (in millions of dollars); LTA = log of total assets (in millions of dollars); SUB = number of subsidiaries; SSUB = square root of the number of subsidiaries; CATA = current assets to total assets; QUICK = quick ratio; DEBTTA = debt to total assets; ROA = return on assets computed as EBIT to total assets; FOREIGN = percentage of foreign assets; LOSS = 1 if firm incurred a current year loss; 0 otherwise; BIG 4 = 1 if Big 4 auditor; 0 otherwise; GROWTH = 1 if company improved by at least 10 places in the Top 200 list; 0 otherwise; LISTED = 1 if firm had equity or debt securities listed on the NZ Stock Exchange; 0 otherwise; HIGHRISK = 1 if company was in the following industry categories: Agriculture & Fishing; Mining; Forestry; Building; Leisure & Tourism; Other Services; Investment; 0 otherwise; SUBOS = 1 if company was a subsidiary of an overseas company; 0 otherwise.

[a]These 56 firms are also included in the numbers above for national and city specialist, respectively.

there is no greater premium than that earned for the city designation alone. Table 3 makes a contribution by showing results in this setting that are comparable to those in previous studies of auditor specialisation at the national level and city levels, for example, Ferguson *et al.* (2003), Francis *et al.* (2005) and Basioudis and Francis (2007). The coefficient on city specialist is 0.345, with a 95% confidence interval of between 0.215 and 0.475. The discount offered by a non-specialist can be computed to be between 19.3 and 37.8% or between $35,000 and $68,000 based on the mean audit fee. These estimates appear quite plausible, as discounts smaller than this are unlikely to provide much inducement to a client, while discounts much larger than this are unlikely to be viable. A variety of sensitivity tests are described in the following sub-sections of this paper.

We also examine specialisation using other market share measures including total fees (audit fees plus non-audit fees); total client size measured by assets; number of clients; and we have also examined the issue of portfolio specialists. Most measures give very similar results, which is not surprising since the measures proxy for the same underlying construct. However, measures using number of clients are quite different from other market share measures, as these measures will capture auditors who have a large number of small clients as opposed to the larger clients in an industry. Specialist measures using audit fees and client size are very highly correlated with

Table 3. Audit fee models for national leader, city leader and combinations (excluding finance industry, non-Big 4 audits and industries with limited observations[a]).

	Model 1			Model 2			Model 3		
	Estimate	*t*-statistic	Prob.	Estimate	*t*-statistic	Prob.	Estimate	*t*-statistic	Prob.
Constant	−2.558	−5.386	0.000	−2.406	−5.197	0.000	−2.402	−5.251	0.000
LTA	0.532	13.742	0.000	0.514	14.141	0.000	0.516	14.362	0.000
SSUB	0.153	3.518	0.001	0.149	3.713	0.000	0.157	3.954	0.000
CATA	0.956	4.775	0.000	0.899	4.408	0.000	0.919	4.558	0.000
QUICK	−0.012	−2.446	0.015	−0.010	−1.680	0.095	−0.011	−1.825	0.070
DEBTTA	0.054	0.224	0.823	0.042	0.182	0.856	0.043	0.188	0.851
ROA	−0.034	−2.805	0.006	−0.034	−2.867	0.005	−0.033	−2.849	0.005
FOREIGN	1.009	2.552	0.012	0.907	2.180	0.031	0.892	2.158	0.032
LOSS	0.259	2.127	0.035	0.249	2.097	0.038	0.240	2.041	0.043
SPEC measured by:									
National leader	0.055	0.542	0.588						
City leader				0.345	5.197	0.000			
National and city leader							0.246	2.243	0.026
National but not city leader							−0.291	−1.735	0.085
City but not national leader							0.696	2.868	0.005
F-statistic		40	0.000		42	0.000		36	0.000
Adjusted R^2		0.685			0.683			0.691	
Sample size		179			174			174	

Note: Two-tailed tests. Dependent variable; = log of audit fees (in thousands of dollars); LTA = log of total assets (in millions of dollars); SSUB = square root of the number of subsidiaries; CATA = current assets to total assets; QUICK = quick ratio; DEBTTA = debt to total assets; ROA = return on assets computed as EBIT to total assets; FOREIGN = percentage of foreign assets; LOSS = 1 if current-year loss occurred; 0 otherwise; SPEC measures; National leader = 1 if auditor is national-level industry market leader; 0 otherwise City leader = 1 if auditor is city-level industry market leader; 0 otherwise; National and city leader = 1 if auditor is national-level and city-level industry market leader; 0 otherwise; National but not city leader = 1 if auditor is national-level industry market leader but not city-level industry market leader; 0 otherwise; City but not national leader = 1 if auditor is city-level industry market leader but not national-level industry market leader; 0 otherwise;

[a]Fewer than five companies nationally or less than three in a city.

each other. National specialist measured by audit fees is correlated at 0.931 with national specialist measured by client size. City specialist by audit fees and city specialist by client size are correlated at 0.930. The portfolio industry specialist measures are correlated with the market share measures using audit fees at about 0.451. However, the market share by audit fees is correlated with market share by number of clients at 0.216. We conducted a sensitivity test where the measure for industry specialists was re-coded using asset size instead of audit fees. The leading audit specialist firm changed in only one industry (forestry). There was no change to the significance levels of the overall audit fee premium results.

We examine the suggestion that some audit firms are portfolio specialists who concentrate their effort in a particular industry, whether or not they have a large market share relative to other audit firms (raised by Neal and Riley 2004, p. 170). We found that (a) industry portfolio specialists are not the same as market share specialists but nevertheless, (b) the audit fee effects from being a portfolio specialist are similar to those from being a market share specialist. Examining the industries in which each of the Big 4 has a large concentration of clients shows that there are some differences between this measure and the market share measures. For example, Ernst & Young has its largest specialisation in industry code A03 Forestry, although it is only the third-ranked firm by market share in this industry. However, in many other cases the firm with the leading market share is also a portfolio specialist.[19] We also conduct fee tests using the portfolio specialist measures in place of the market share specialist measures. The results parallel those in prior testing – there are premiums for city-level portfolio specialists but not national-level portfolio specialists.[20,21]

Table 4 examines the results broken down by categories. It summarises the results of our estimation of all models for the following 10 subsets of data listed below (as well as for the entire sample). In each case the model stated above in Equation (2) is estimated separately in order to assess whether specialisation is associated with higher or lower fees for that subset.

- Larger companies in the top 100 of the Top 200 list[22]
- Smaller companies outside the top 100 of the Top 200 list
- Listed companies
- Unlisted companies
- Growth companies (those that improved their ranking in the Top 200 list by 10 places or more in the past year)
- Non-growth companies
- Higher risk companies (in relatively volatile industries based on the variability of reported revenues)[23]
- Lower risk companies
- Subsidiaries of overseas companies
- Not subsidiaries of overseas companies.

Panel A of Table 4, which summarises our results designating specialists only at the national level, reveals no significant coefficients on the specialist variable. Panel B, in direct contrast, reveals evidence of significant audit fee premiums for city-level specialists for the full sample and for all subsets except for small clients and high-risk clients. Thus, the results from Table 3 are further substantiated in Table 4 with respect to the importance of city-level specialist designation vs. national in our setting. The contribution of Table 4 is its breakdown of the results into subsets of clients and giving evidence that premiums apply to certain categories of clients. This allows us to develop arguments about the premiums or discounts.

To analyse the implications of the subset analysis, let us focus first on the subsets with significant premiums in Panel B. We find evidence of specialist premiums at the city level for large clients, for both listed and unlisted companies, both for clients which have demonstrated growth over the past year and clients which have not, for low-risk firms and both for companies that are subsidiaries of overseas companies and companies that are not. We find no evidence of fee premiums to specialist auditors of smaller clients or high-risk firms (after controlling for risk, complexity, etc. in the pricing model). In interpreting these results, we now focus on those subsets where fee premiums appear to be absent. If we keep in mind that each subset is formed based on a single dimension (unlisted, for example, includes firms of all sizes and volatility levels), then we realise that the most interesting finding is that small firms and high-risk firms appear to be the only categories where specialist auditors are not charging more than non-specialists.

A plausible interpretation of this result is that non-specialist auditors are forced to offer a fee discount to attract those clients that are most desirable because of their larger size (which translates into greater audit fees) or their low propensity for litigation, as indicated by relatively stable revenues in their respective industries (lowered risk or volatility). Under this explanation, what we observe can be perceived simultaneously as a premium for specialists and as a discount to

Table 4: Coefficient and significance levels of specialisation variable in subset tests: sample partitioned by size, listing status, demonstrated growth, risk or volatility and whether a firm is a subsidiary of another firm.

Panel A: Models examining national specialist

National specialist (Model 1)	Coefficient	Significance
All companies	0.019	0.840
Large company subset	0.007	0.963
Small company subset	0.027	0.831
Listed company subset	0.050	0.683
Unlisted company subset	−0.050	0.735
Growth company subset	−0.268	0.244
Non-growth company subset	0.069	0.529
Higher risk company subset	0.020	0.927
Lower risk company subset	0.000	0.999
Subsidiary of overseas company subset	0.042	0.816
Non-subsidiary of overseas company subset	0.070	0.527

Panel B: Models examining city specialist

NZX city (Model 2)	Coefficient	Significance
All companies	0.345	0.001 ***
Large company subset	0.559	0.000 ***
Small company subset	0.174	0.244
Listed company subset	0.299	0.017 **
Unlisted company subset	0.374	0.030 **
Growth company subset	0.462	0.082 *
Non-growth company subset	0.329	0.005 ***
Higher risk company subset	0.304	0.150
Lower risk company subset	0.413	0.001 ***
Subsidiary of overseas company subset	0.465	0.022 **
Non-subsidiary of overseas company subset	0.327	0.008 ***

Notes: ***Significant at $p < 0.01$; **significant at $p < 0.05$; *significant at $p < 0.1$.
Tables report coefficient and significance levels of coefficient on auditor specialisation (SPEC) in this model for each subset of data:

$$\text{LAF} = \beta_0 + \beta_1\text{LTA} + \beta_2\text{SSUB} + \beta_3\text{CATA} + \beta_4\text{QUICK} + \beta_5\text{DEBTTA} + \beta_6\text{ROA} + \beta_7\text{FOREIGN} + \beta_8\text{LOSS} + \beta_9\text{SPEC} + \varepsilon$$

'National' indicates specialist defined as leading firm at national level; 'City' at the city level.
Companies in finance industry categories excluded.

Large	Companies in top 100 of the Top 200 list
Small	Companies outside the top 100 of the Top 200 list
Listed	Listed companies and debt issuers
Unlisted	Others
Growth	Companies that had improved their ranking in the Top 200 list by 10 places or more
Non-growth	Others
High-risk	Companies in the following industry categories: Mining; Forestry; Building; Leisure & Tourism; Other Services; Investment
Low-risk	Others
Subsidiary of overseas	Companies that were subsidiaries of overseas companies
Non-subsidiary of overseas	Others

non-specialists (since a specialist fee premium is defined as an increment paid to specialists above the fee paid to non-specialists after controlling for risk, size and complexity). In contrast, even the most desirable clients are not able to negotiate fees as successfully with auditors who have differentiated themselves via industry specialisation. Our finding that listing status does not appear to affect the pricing or bargaining power in the same manner as client size or industry risk is consistent with at least two interpretations. One possibility is that listing status does not capture the risk to the auditor in our setting as effectively as a proxy based on the volatility of revenues in the client's industry. Another is that listed firms tend to self-select specialist auditors. To consider this second possibility, along with other self-selection and sensitivity issues, we next perform a series of robustness tests.

4.3. *Self-selection and other robustness issues*

The above OLS regression should allow for valid inferences if self-selection issues are not prevalent. However, as pointed out in Chaney *et al.* (2004), companies are not randomly assigned to audit firms, but select their auditors. The client and audit firm characteristics that affect auditor choice may be similar to the variables in our fee models. Chaney *et al.* (2004) suggest that Big 4 firms have higher fixed costs due to more extensive staff training, investments in technology, etc., but lower variable costs relative to non-Big 4 auditors. Thus, it seems reasonable to conjecture that a similar issue might apply to specialists compared to non-specialist auditors and this is consistent with the arguments presented by Craswell *et al.* (1995). As a simple approach to dealing with this issue, we estimate separate models for clients of specialist and non-specialist auditors and test for differences between them. Table 5 presents our audit fee models estimated separately for the clients of specialists and non-specialists. We present auditor specialisation here measured at the city level, since those results are most significant in prior tests.

The results presented in Panel A of Table 5 suggest that there could be some differences in coefficients between the models for our sample. However, as the *F*-tests reported in Panel B of Table 5 reveal, the significant difference is due to differences in the intercepts between the specialist and non-specialist samples. The slope coefficients are not significantly different between the two samples. Thus, these results provide some assurance that the use of OLS regressions is not problematic with respect to differences in fee models between clients of specialist and non-specialist auditors in our setting.

As a further test of the self-selection issue, we next estimate a treatment effects model predicting the choice of a specialist or non-specialist auditor in the first equation and audit fees in the second.[24] The first equation performs poorly at predicting specialist auditors, classifying 71% correctly in the overall sample but only 16% of those choosing specialists. A lack of significance of most of the variables in the first equation serves to mitigate our concern that endogeneity of the independent variables might be affecting our interpretation of the OLS results. More importantly, we find that rho (the correlation between the errors in the two equations) is not significantly different from zero, indicating that self-selection is not a concern in our setting. We further conducted tests based on those in Chaney *et al.* (2004) in which we estimated a probit model, computed inverse Mills ratios for each observation and incorporated the inverse Mills ratios in a regression model. The coefficient on the inverse Mills ratio is not significant in a model of the overall data or in separate models of clients of specialist auditors and non-specialist auditors. Once again we find no evidence of self-selection effects.

As an additional robustness test, we calculate counterfactual audit fees to examine whether fees are different for the data broken down by category:[25] large clients with specialists, large clients with non-specialists, then small clients with specialists, small clients with non-specialists, listed companies and unlisted companies and so on (details of these models are not reported).

Table 5: Models estimated separately for clients of specialists and non-specialists.

Panel A: Regression models of audit fees for clients of city-level specialist and non-specialist auditors

	Specialists			Non-specialists		
	Estimate	t-statistic	Prob.	Estimate	t-statistic	Prob.
Constant	−2.072	−2.510	0.016	−2.334	−3.862	0.000
LTA	0.512	7.958	0.000	0.511	10.780	0.000
SSUB	0.194	2.909	0.005	0.128	2.380	0.019
CATA	1.064	2.558	0.014	0.811	3.263	0.001
QUICK	−0.022	−0.442	0.661	−0.009	−1.450	0.150
DEBTTA	−0.084	−0.190	0.850	0.091	0.328	0.743
ROA	−0.016	−0.030	0.977	−0.034	−2.718	0.008
FOREIGN	0.218	0.359	0.721	1.526	2.567	0.012
LOSS	0.063	0.236	0.815	0.324	2.134	0.035
F-statistic		18	0.000		24	0.000
Adjusted R^2		0.710			0.614	
Sample size		57			116	

Panel B: F-tests for differences in intercepts and slope coefficients between clients of specialist and non-specialist auditors

Test	F-statistic	Sig.
Joint F-test that all slope coefficients and the intercept are the same across clients of specialists and non-specialists	2.352	0.015
Joint F-test that all slope coefficients excluding the intercept are the same across clients of specialists and non-specialists	1.071	0.386
F-test that the intercept is the same across clients of specialists and non-specialists	12.569	0.000

Notes: specialists = auditor is city-level industry market leader; non-specialists = other. LAF = log of audit fees (in thousands of dollars) (dependent variable); LTA = log of total assets (in thousands of dollars); SSUB = square root of the number of subsidiaries; CATA = current assets to total assets; QUICK = quick ratio; DEBTTA = debt to total assets; ROA = return on assets computed as EBIT to total assets; FOREIGN = percentage of foreign assets; LOSS= 1 if current-year loss; 0 otherwise.

These results again show that specialists charge significantly more (or non-specialists significantly less), regardless of self-selection effects, for the sample overall; for large clients; for unlisted companies; and for lower risk companies. These results are generally consistent with the models reported earlier in the paper. In summary, we find no evidence of self-selection bias in our estimation. We conclude that a two-stage model is not needed in our setting. Thus, in our study, self-selection effects are not an important factor.

We also estimate our models designating both the first and second-ranked market leaders as specialists. The second-ranked firms did not earn significant fee premiums in any case and these results are not presented. The models were next computed excluding each Big 4 firm, one at a time, to ensure that the results are not driven by any one firm. The significance levels remained the same in each instance. The results are also robust across the two alternative industry classification schemes and when industries with varying numbers of limited observations are omitted.

Additional sensitivity tests include: omitting those industries where the market leader is only narrowly ahead (15% or less) of the next ranked firm; expanding our sample to include non-Big 4 clients; and adding a dummy variable to control for higher fees in Auckland, which has higher salary costs, on average, than other cities in New Zealand. In all cases, the coefficients and significance levels of the various specialisation variables were approximately the same as those presented.

We also consider whether the choice of a specialist auditor is affected by a company's overseas subsidiary status or its status with respect to listing, demonstrated growth or industry risk. These tests (not reported) reveal evidence of a significant relation between specialist choice and size (significant at $p = 0.000$ when these other dummy variables are included), suggesting that larger firms are more likely to choose specialist auditors. There appears to be no significant relation between listing status, growth or risk and the choice of a specialist auditor.

Our results with respect to the overall level of fee premiums paid at national and city-level designations to specialist auditors are similar to those of Francis *et al.* (2005) and Basioudis and Francis (2007) in our finding that premiums exist at the city level, whether or not the firm is a specialist at the national level and unlike those of Ferguson *et al.* (2003), who found that both national and city designations were necessary for a premium to be earned. Further, we find premiums only for the top-ranked firm, whereas Ferguson *et al.* (2003) found evidence of premiums for the top two firms.

5. Summary

In summary, we present strong evidence of fee premiums to city-level specialists in New Zealand and no evidence of premiums to national specialists. With respect to client size, prior research has produced mixed results, with Casterella *et al.* (2004) finding that small clients are most likely to pay a specialist premium and most other studies including Craswell *et al.* (1995) presenting evidence of a specialisation premium only for relatively large clients. Our results are generally consistent with Craswell *et al.* (1995) and not with Casterella *et al.* (2004). We find much stronger evidence of specialist fee premiums paid by large clients and weaker, less consistent evidence of premiums paid by small clients. In sensitivity testing we use a variety of cut-offs, as well as a continuous size variable. Our results are robust for large clients. Thus, we do not find evidence that large client firms use their bargaining power to negotiate lower fees, or to negotiate away specialist premiums. The evidence suggests instead that large clients may be able to negotiate lower fees when their auditor is *not* a specialist.

We next turn to our various subsets of firms in an attempt to shed insight into the source or nature of specialist fee premiums. In our initial research design, we posited the following as a means of distinguishing among alternative explanations:

(1) If fee premiums are paid only by the largest clients in our sample, or only by those active in the public equity markets, our findings are most consistent with the reputation argument. (A premium for large clients only is also consistent with monopoly pricing.)
(2) If fee premiums are paid only by the smaller clients in our sample, or to those that are unlisted but growing rapidly, our findings are most consistent with an advisory role for specialist auditors.
(3) If no fee premiums are paid to specialist auditors (or if discounts are documented), our findings are most consistent with economies of scale.
(4) If fee premiums are paid to specialist auditors in categories that are the most desirable as clients, then our findings are consistent with a premium for quality together with discounts offered by non-specialists.

Taken together, our models show that there are strong and consistent city-level premiums for the whole sample, for larger companies, for both listed and unlisted companies, for companies with or without demonstrated growth, for low-risk companies and for both subsidiaries of overseas companies and non-subsidiaries. There is no evidence of a fee premium paid by high-risk companies and smaller companies. The absence of a premium at the national level is generally consistent with previous studies.

These results are quite clear in showing that explanations (1) and (3) are easily ruled out and the reputation effect explanation (number (2)) is supported only to the extent that the larger clients in our sample are likely to pay fee premiums. However, premiums are observed for both listed and unlisted companies in our setting. Explanation (4) (above) is consistent with the evidence.

We conclude that, even in this relatively simple setting, audit fee determination reflects a complex interplay of demand and supply factors. Further, our findings suggest that specialist auditors in New Zealand are not likely to succumb to pressures to lower prices for large clients with greater bargaining power. Instead, non-specialists may be forced to offer lower fees to attract the most desirable clients, such as larger clients and low-risk clients. Thus, the bargaining power shifts from the auditor to the client in our setting in the case of desirable clients negotiating with non-specialist auditors.

6. Conclusion

A number of recent research papers examine the impact of industry specialisation by auditors on audit fees in a variety of contexts. Some propose that auditors who specialise in an industry are able to perform higher quality audits, which are recognised and valued by financial statement users and/or by managers to the extent that higher audit fees are warranted and paid to such specialists. The evidence to date is, however, mixed with respect to: (a) the existence of a specialist premium; (b) whether such a premium accrues only to national and city-specific specialists, or whether one designation is sufficient; and (c) whether large or small client firms are most likely to pay such a fee premium. We find that there are premiums at city level; these apply when alternative measures of specialisation are used; continue to apply when self-selection is controlled for; and apply to portfolio specialists as well as market specialists. Premiums do not apply to all segments of the market and the evidence is consistent with the apparent premiums arising because non-specialists are forced to offer lower fees to attract desirable clients.

Our study adds to previous evidence about auditor specialisation. The finding that such premiums are best captured at the city level in our setting is particularly interesting in light of previous research in US and Australian settings. Francis *et al.* (2005) suggested that:

> since the Big 5 accounting firms have many more offices in the U. S. compared to just a handful in Australia, it may be more difficult for Big 5 firms in the U. S. to achieve the firm-wide transferability of office specific industry expertise and, more generally, to achieve a uniform firm-wide reputation across a divergent range of offices.

Thus, we might have expected to find that transferability (and thus the role of national rather than local expertise) would play a more important role in New Zealand, which is heavily concentrated relative to the other settings and in which only two cities have auditor industry specialists. Our results reflect the opposite, with essentially no fee differences when specialist is defined at the national level; this evidence is consistent with the US study by Francis *et al.* (2005) and the UK study by Basioudis and Francis (2007), but inconsistent with the Australia-based study by Ferguson *et al.* (2003) where both city and national levels of leadership were needed. However, Francis *et al.* (2005) acknowledged that their results for city-specific leadership (alone) were mixed and inconclusive. Thus, our findings add strength to the argument that city-specific industry leadership alone is sufficient.

We also examine the issue of self-selection. While it seems reasonable to argue that auditor industry specialists are selected by clients for reasons of economic efficiency, and that the same variables which determine audit fees might also influence the choice of a specialist or non-specialist, the evidence shows that self-selection does not appear to be a significant issue in our setting. Other sensitivity tests examined alternative measures of specialisation and found that these generally do not affect the results. We examined portfolio specialists and found that they earn premiums similar to market specialists, that is, at the city level.

Perhaps our most interesting finding is revealed when we focus on various subsets of firms in our effort to provide insight into *why* firms are willing to pay a fee premium for specialist auditors and to eliminate some seemingly feasible explanations. We find consistent evidence of city-level premiums for the whole sample, for larger companies and for companies in industries that are relatively stable (low-risk companies). There is no evidence of a fee premium paid by listed companies and limited evidence of premiums paid by smaller companies. Our results suggest that in the determination of audit fees, the power shifts to the client when the auditor is a non-specialist and the client is relatively large or presents relatively low risk to its auditor. In other words, auditors without specialist expertise in an industry are forced to offer discounts if they wish to attract the most desirable clients; these clients are not able to negotiate fees as successfully with auditors who have differentiated themselves via industry specialisation. The clients that choose the non-specialist in order to benefit from the 'discount' would also forego the differentiated service, perhaps because the client is sufficiently strong that it does not need to signal quality or otherwise take advantage of the added expertise of a specialist auditor at present. Future research could examine changes in market share over a period to assess whether non-specialists who offer a discount are able to build market share and establish a stronger market position. Such a study might also assess changes in audit fees and quality after a switch to or from an industry specialist.

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Notes

1. Data availability: data were obtained from publicly available sources as described in the paper.
2. 'An additional mechanism through which firms may be able to identify their quality status is through establishing industry specialisation. An auditor with more specialist industry expertise is likely to be perceived to deliver higher quality audits and the evidence does tend to support the relevance of expertise as a quality signal' (FRC 2006, p. 63).
3. The GAO (2008, p. 21) notes that audit committee chairs of large public companies stated that they require an auditor with industry specialisation or expertise and specific industry experience.
4. The different price level can be perceived as either a premium for specialists or a discount for non-specialists; we represent it as a discount for non-specialists because (i) the specialists usually audit the majority of the market, so that their fees are the standard rate and (ii) the discounts apply in situations where the clients are more attractive and therefore likely to be encouraged by a discount. This issue is discussed further later in the paper.
5. Eichenseher and Danos (1981) and Danos and Eichenseher (1982) suggested that specialist auditors may experience economies of scale in auditing clients in the industries of expertise, for example, regulated industries, suggesting possible specialist discounts. However, more recent studies focus primarily on specialist premiums.
6. Ward *et al.* (1994), Craswell *et al.* (1995), Cullinan (1998), Bandyopadhyay and Kao (2001, 2004), Ferguson *et al.* (2003), Casterella *et al.* (2004), Chen and Wu (2004), Boon *et al.* (2005), Francis

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et al. (2005), Basioudis and Francis (2007), Carson and Fargher (2007), Huang *et al.* (2007), Khalil *et al.* (2008), Carson (2009).
7. Ettredge and Greenberg (1990), O'Keefe *et al.* (1994), Chase (1999), Fields *et al.* (2004), Giroux and Jones (2007).
8. Palmrose (1986), Pearson and Trompeter (1994), Eichenseher (1995), Hackenbrack *et al.* (2000), Menon and Williams (2001), Ferguson and Stokes (2002), Jensen and Payne (2005), Pong and Burnett (2006), Lowensohn *et al.* (2007).
9. DeFond *et al.* (2000), Mayhew and Wilkins (2003), McMeeking *et al.* (2006).
10. Some Australian studies such as Craswell *et al.* (1995) include banks in their data. The Australian stock exchange also includes a large number of mining companies. We are grateful to an anonymous reviewer for pointing this out. Both of these groups are different from audits in more conventional industries, and may give rise to results that are particular to this setting. However, Francis *et al.* (2005) and Basioudis and Francis (2007) exclude financial institutions, and do not include many mining companies, and still find some evidence of premiums.
11. The 32 published papers in this area show mixed results in the various settings as well as overall. There are studies showing mixed results in each of the listed company sectors, municipalities and the various countries examined. More recent studies more frequently identify a premium than early studies, but there are recent studies also reporting a discount, or no significant effect.
12. The models examined vary from study to study, and this could be a factor in the inconsistent results.
13. For example, the results of Craswell *et al.* (1995) vary depending on the definition of a specialist, with significant results when a specialist is defined as holding greater than 10% market share but not when a 20% cut-off is used, even though this represents a greater dominance of the market.
14. Christchurch and Dunedin were traditionally regarded as the other two main centres, but there are no longer large numbers of large companies headquartered in those two cities.
15. Plus other listed companies not in the top 200.
16. Companies with more than 20% overseas ownership are required to submit audited financial statements to the Registrar of the Companies Office, and they are made available to the public.
17. However, large companies owned by private New Zealand-resident individuals are not required to disclose their financial statements.
18. We were concerned that any single industry classification scheme might not be a good fit with the underlying aspects that cause audits in different industries to vary.
19. KPMG is a portfolio specialist in Agriculture and Fishing, and also has the largest market share in this industry; PwC is a portfolio specialist in Energy and is also the market leader. However, DTT is a portfolio specialist on forestry while being the second rank firm in this industry.
20. More specifically, there is no significant premium for national-level portfolio specialists; the coefficient on city-level portfolio specialists is significant at 0.003; and in a model including national and city specialists, national and city specialists receive a premium that is marginally significant at 0.069, national but not city specialists are not significant and city but not national receive a premium that is significant at 0.023.
21. We also conducted a sensitivity test in which the log of non-audit fees (LNAF) was included in the regression models. LNAF was not significant in any of the models.
22. These companies had total assets of about $100 million or more.
23. When we define high and low risk using firm-level measures based on losses, debt and liquidity, the results are qualitatively similar to those presented.
24. One assumption of the treatment effects model is that differences between samples apply only to intercepts and not to other slope coefficients; thus, this model appears to be well suited here.
25. We estimate a model of fees for large clients with specialist auditors; we then apply the coefficients from this model to large clients with non-specialist auditors, and we test whether the differences between the actual and alternative-choice estimations are significantly different from zero. We next repeat this test in the opposite direction (the model for clients with non-specialist auditors is applied to clients with specialists). We conduct this test for each of the sectors of the audit market that we examine.

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CALL FOR PAPERS

SPECIAL SECTION

EUROPEAN ACCOUNTING REVIEW ON

ACCOUNTING AND REPORTING IN FAMILY FIRMS

Guest Editors:

Annalisa Prencipe – Bocconi University
Sasson Bar-Yosef – Bocconi University
Henri Dekker – VU University Amsterdam

As the dominant form of business organisations worldwide, family firms play a central role in the social and economic development of many countries. Indeed, family businesses create an estimated 70–90% of global GDP annually. Also, family firms comprise 80% to 90% of all business enterprises in North America and, on average, over 80% of businesses in the main European countries (e.g. France, Germany, Italy, Spain, Sweden, etc.) (FFI, 2010).

Notwithstanding such a dominance of family firms around the globe, the accounting literature, so far, has focused mainly on widely-held companies, leaving accounting issues in family businesses virtually unexplored. Because of the peculiarities of such firms on several dimensions – such as goals, investment horizons, organisational behaviour, governance structures and financial performance – the conclusions reached on widely-held companies may not be generalised easily to family firms.

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- Earnings quality and earnings management in family firms
- Determinants or effects of voluntary disclosure in family firms
- Market reaction to news related to family companies
- Audit issues in private or public family firms
- Corporate governance and accounting policies in family firms
- Corporate social responsibility in family companies

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- Management compensation and incentives in family businesses
- Ethical issues related to reporting and accounting in family firms
- Accounting and control practices in family firms (e.g., performance measurement choices and design, capital budgeting/allocation and investment decision making)
- Formal and informal control systems in family enterprises
- Risk management in family companies

Following the *EAR* policy of openness and flexibility regarding methodologies and styles of conducting research, papers using analytical approaches (including both mathematical modeling and qualitative reasoning), experimentation, field-study methods, surveys and empirical-archival methods will be considered.

Papers submitted to this special section will be subject to a double blind review process. Authors are encouraged to contact the guest editors in advance should there be any matters on which they require clarification or guidance:

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The deadline for submissions is **June 13, 2011**.

There are plans to hold an *EAR* Conference where a selection of papers that passed the first-round review process will be presented and discussed. More details will be announced at a later stage.

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Accounting and Business Research
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Editorial

In collaboration with the Institute of Chartered Accountants in England and Wales, *Accounting and Business Research* (*ABR*) is pleased to present the sixth issue of the *International Accounting Policy Forum* (*IAPF*). The issue contains the papers presented at the Institute's 2010 Information for Better Markets conference, which asked for evidence and reflections on the effects of implementing International Financial Reporting Standards (IFRS) around the world. The major papers written by leading international academics reflect the themes they were invited to develop in their presentations at the Forum, all providing different styles of thought-provoking evidence and comment. The responses from practitioners provide a taste of the lively debate provoked in a mixed audience of leading practitioners and policymakers sitting alongside academics from a spectrum of international institutions. It is the hope of the editor and the Institute that publication of the papers will encourage a continuing and widening debate which will facilitate better communication among the research community, the accounting profession, company managers, regulators and all other parties interested in the debate over the regulation of corporate reporting.

It is a further pleasure to *ABR* that we are publishing here the annual P.D. Leake Lecture paper from 2010, providing a thought-provoking analysis of the evolution of accounting and its role in respect of financial crises.

The major papers from the conference, together with the P.D. Leake presentation, have been reviewed by academic reviewers. I am particularly grateful to the reviewers and the authors for the care they have taken with this process.

IAPF is explicitly charged with bridging the gap between academia and the profession. The contents of this issue provide many opportunities for engaging research and practice.

Pauline Weetman
Editor, Accounting and Business Research

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Introduction

The papers in this issue of *International Accounting Policy Forum* look at two questions of great practical importance: the impact of financial reporting on financial stability and the effects of implementing International Financial Reporting Standards (IFRS) around the world.

There has been much controversy in recent years surrounding the alleged role of financial reporting in causing and/or aggravating the global financial crisis. In this debate, some have blamed fair value accounting, others have blamed historical cost accounting, while others – although supporting historical cost accounting in principle – have blamed the incurred loss model for measuring historical cost impairments. While the precise nature of these accusations reflects the particular circumstances of the early twenty-first century, there is nothing new about the idea that accounting can cause financial crises. In the 1930s, some people blamed accounting for the Great Crash of 1929 and the Great Depression that followed it.

We thought it would be useful to take a longer perspective on current controversies and so we invited accounting historian Gregory Waymire to give the ICAEW P.D. Leake Lecture for 2010 on the topic of 'Financial Reporting and Financial Stability: What can we Learn from History?' presented in this journal under the title 'Economic Crisis and Accounting Evolution'. Professor Waymire's paper, written with Sudipta Basu, is at least half-reassuring for accountants, as the authors conclude that 'Historical evidence and contemporary economic analyses indicate that corporate financial reporting plays a minor role in precipitating economic crises.' They also conclude, however, that financial reporting 'might help amplify' economic crises. They look too at the effects of financial crises on financial reporting – both through processes of natural selection among accounting practices and through the 'post-crisis speculative frenzy in regulation' that is the common result of such events.

The four papers on IFRS are based on presentations at the 2010 ICAEW Information for Better Markets Conference on 'Adopting IFRS: The Global Experience'. As IFRS move ever closer to providing the one set of global accounting standards it becomes increasingly important to assess whether they are actually delivering the benefits expected from them. The conference papers consider the evidence to date.

In my introduction to last year's *International Accounting Policy Forum,* I commented that what emerged from the conference papers in that issue was 'the pervasiveness of politics in all accounting regulation'. It seems to me that a similar, and related, point emerges from the conference papers in this issue: the importance of institutions, particularly for enforcement, in determining financial reporting outcomes. Standards are just one institution in a set of complex and variable structures, which vary from one jurisdiction to another. They are important in their own right, but will not by themselves secure the outcomes that we hope to achieve. This message emerges from all four conference papers, although their authors have different perspectives on the issue and some have their own suggestions for what should be done about it.

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The conference was organised jointly with the INTACCT accounting research network, funded by the European Commission. The first paper at the conference, presented by Peter Pope, looked both at the objectives of IFRS and at what the research of INTACCT and others can tell us about its effects. Professor Pope's paper, written with Stuart McLeay, draws attention to – among other things – the relatively recent emergence of the claim that a key objective of IFRS is to reduce the cost of capital. Peter Holgate's commentary on their paper notes that this claim has now been repeated so often that it has become a 'truth by repeated assertion'. This is unhealthy, and Professors Pope and McLeay provide a useful corrective with their critical assessment of the evidence.

Their proposed response to unevenness of financial reporting enforcement within the EU is that European companies, regardless of their domicile, should be allowed to choose to be regulated by another EU member state's regulatory regime. They argue that this would allow companies to benefit from the more effective enforcement regimes of certain member states, and promote competition among enforcement regimes within the EU.

Philip Brown's paper reviews the empirical research on the benefits of IFRS adoption and cautiously concludes that 'undoubtedly some consequences [of IFRS] are regarded by companies and investors as, on balance, beneficial'. But he notes that 'the extent of the benefits actually achieved in any one country depends upon many things', including the nature of the standards used before the change to IFRS; the credibility of any representation that the financial statements comply with IFRS; the presence of legal or other regulatory backing for the standards; and the degree of compliance monitoring and enforcement.

Professor Brown also provides a valuable list of directions for future research into the effects of IFRS adoption.

Shyam Sunder sets out the case, relying as much on general experience of the effects of monopoly and competition as on specifically accounting research, against a global monopoly for IFRS – or indeed any other set of accounting standards. Like other speakers at the conference he notes the importance of 'interrelationships among economic, business and legal institutions of society and the corresponding regimes of financial reporting and auditing', and draws the conclusion that the goal of imposed global uniformity in accounting is a delusion – and, moreover, a dangerous delusion.

Instead of the top-down imposition of global standards, Professor Sunder – stressing the importance of learning and discovery procedures – argues for 'greater reliance on bottom-up evolution of financial reporting practices' and for competition among international standard-setters.

Peter Wysocki develops a framework for what he calls 'new institutional accounting' (NIA) research, and applies his approach to IFRS. This puts empirical and theoretical work on the institutions that are relevant to financial reporting into a wider context of institutional research. He also identifies a number of challenges for NIA. These include investigating the possibility that institutional changes will be for the worse. Specifically, Professor Wysocki warns of a danger that, with IFRS, we may have gone 'past the point of no return ... to create an international club that countries can freely join, but [that] it is ... nearly impossible to leave without incurring massive costs'. This increases the risk that IFRS will 'evolve into an inefficient institution'.

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We are also grateful to Pauline Weetman for her continuing support as Editor of *ABR* and the *Forum*, to the academic authors featured in this issue and to the practitioners who commented on their papers and whose remarks are reproduced here. Bringing together practitioners and academics remains an essential function of the *Forum*.

Finally, thanks are due to the ICAEW's charitable trusts, which generously provided funding to support the 2010 P.D. Leake Lecture and Information for Better Markets Conference and the preparation for publication of the related academic papers, as well as to INTACCT for its support for the conference and papers.

Robert Hodgkinson
Executive Director, Technical
ICAEW

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P.D. LEAKE LECTURE

Economic crisis and accounting evolution

GREGORY WAYMIRE[a]* and SUDIPTA BASU[b]

[a]*Goizueta Business School, Emory University, 1300 Clifton Road NE, Atlanta, GA 30322, USA;* [b]*Fox School of Business, Temple University, Alter Hall, 1801 Liacouras Walk, Philadelphia, PA 19122, USA*

We study changes in financial reporting around economic crises from a historical perspective through the lens of punctuated equilibrium evolution. Historical evidence and contemporary economic analyses indicate that corporate financial reporting plays a minor role in precipitating economic crises but might amplify them. Economic crises likely play a role similar to major shocks in biological environments by selecting accounting practices, accounting principles, firms and regulatory institutions for survival based on how well they adapt to post-crisis environments. Conscious attempts to improve accounting in the wake of crises, whether through market or political forces, may not prove as beneficial as hoped because we currently know far too little about the causes of economic crises or the consequences of abrupt changes to complex adaptive systems such as accounting. We outline several questions for future research that would increase our knowledge about these fundamental issues.

Keywords: selection; transformation; migration; unintended consequences; pretence of knowledge

> *If man is not to do more harm than good in his efforts to improve the social order, he will have to learn that in this, as in all other fields where essential complexity of an organised kind prevails, he cannot acquire the full knowledge which would make mastery of the events possible. He will therefore have to use what knowledge he can achieve, not to shape the results as the craftsman shapes his handiwork, but rather to cultivate a growth by providing the appropriate environment, in the manner in which the gardener does this for his plants. … The recognition of the insuperable limits to his knowledge ought indeed to teach the student of society a lesson of humility which should guard him against becoming an accomplice in men's fatal striving to control society …* (Friedrich A. Hayek 1975, p. 442)

1 Introduction

Recent economic crises once again raise the concern of whether weak financial reporting can destabilise an economy. Addressing this important issue requires tackling two broad questions:

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*Corresponding author. Email: Gregory_Waymire@bus.emory.edu

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(1) How can accounting contribute to making an economic crisis more likely or more severe?
(2) Are flaws or weaknesses in accounting practice revealed in the rubble of an economic crisis and can we implement reforms that correct these flaws?

We consider these questions from a perspective that emphasises two axioms. The first is that the economic history of past crises is a useful starting point for analysing the relation between financial reporting and economic crisis. The second is that a scientific understanding of economic crises and the role that accounting could play in such crises would be invaluable. Locating our analysis at the intersection of the economic history and the science of economic crises leads to a clear conclusion: our current understanding of the impact of corporate financial accounting on economic crises is extremely limited.[1] Thus, we can offer only tentative answers to our focal questions.

Extant theory and evidence suggest that accounting plays at best a secondary role in causing an economic crisis. Recent books by economists on the causes of economic crises make virtually no reference to accounting; indeed, many of these books do not include the term 'accounting' in the subject index (Kindleberger 2000, Reinhart and Rogoff 2009, Rajan 2010). When accounting is mentioned, it is usually in a secondary capacity when discussing financial fraud or regulatory constraints that are based on accounting numbers (e.g. FCIC 2011, pp. 122–123). Most economic analyses focus on fundamental economic attributes such as speculation and the influence of leverage in magnifying negative macroeconomic shocks (e.g. Reinhart and Rogoff 2009, pp. 21–33). During the Internet bubble, investors often ignored accounting basics when pricing speculative stocks, valuing firms at their initial public offerings (IPOs) based on how quickly they 'burned' money rather than whether they had any revenues or profits (e.g. Wolff 1998). Furthermore, momentum investors, contrarians, as well as those following technical trading strategies base their trading decisions on patterns in past prices and ignore accounting information. Thus, if weak accounting contributes to economic crises, it likely plays a role in amplifying a crisis rather than causing it per se.

As to whether weak accounting is evident in the aftermath of a crisis, we are likewise temperate in our answer. Indeed, here we suggest that we have not even correctly framed the question. Identifying if and how weak accounting is revealed in an economic crisis requires a theory of how accounting practice evolves, and a shift in perspective to the effects of *ex post* selection by the economic environment instead of only *ex ante* choice by human agents. Prior work in evolutionary biology allows an evolutionary process to be formalised for any biological, cultural or economic system (Price 1970, 1995, Frank 1995, Page and Nowak 2002, Kerr and Godfrey-Smith 2009). Within this framework, we hypothesise accounting evolution around crises as bursts of rapid change amidst periods of relative stasis consistent with punctuated equilibrium theory (Eldredge and Gould 1972, Gould and Eldredge 1993, Grundfest 2002). However, identifying how accounting evolves also requires specification of the hierarchical level(s) on which evolution acts – for example, at highly granularised levels of specific accounting treatments or at the level of broad general principles or standard-setting bodies.

Thus, we cannot make any overarching statements about how economic crises affect accounting because we collectively know so little about how accounting evolves. The result is that even the most knowledgeable and well-intentioned persons will find it extremely difficult to design and implement major reforms that eliminate accounting weaknesses that contribute to crises *and* entail no adverse long-run consequences. This occurs in part because it is difficult to identify the selection effects of weak accounting in the aftermath of a crisis (i.e. learning what caused the crisis). It also arises partly because individuals and groups seek rents and lobby policymakers for institutional changes that appear to be in the public interest, but may be ineffective and cause other problems (Tullock 1967, Krueger 1974, Watts and Zimmerman 1979, Romano 2005).

Most importantly, the problem stems in part from the same hubris associated with human over-confidence in the ability to control complex phenomena and guide social institutions (Hayek 1975). It is likely that post-crisis reforms will be more successful when they are modest, targeted towards incremental changes in established institutions and do not create unconstrained political power that can retard the development of robust financial institutions (Haber *et al.* 2008).

The rest of the paper is organised as follows. In the next section, we define 'economic crisis' and the economic function of accounting. The following section deals with the role of accounting in contributing to economic crises. We discuss accounting selection and evolution as well as the post-crisis political economy of accounting in the next section. The paper finishes by offering some concluding remarks and highlighting opportunities for future research.

2. Background

This section provides background necessary for the rest of the paper. We first explain what we mean by 'economic crisis'. We then describe the economic function of accounting since that will allow us to say something about how accounting functions during a crisis. We complete this section by elaborating on the focus of our analysis.

2.1. *What is an economic crisis?*

Economic crises are periods of sharp drops in economic activity that cause widespread changes in expectations about future economic prospects and are frequently sandwiched between periods of speculative frenzy in the economic and political markets (e.g. Ribstein 2003). However, a crisp definition of the term 'economic crisis' is not available. Trying to define an economic crisis calls to mind the failed attempt of US Supreme Court Justice Potter Stewart to define pornography: 'I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description; and perhaps I could never succeed in intelligibly doing so. But I know it when I see it....'[2]

Because of this definitional ambiguity, we follow Reinhart and Rogoff (2009, pp. 3–20), who classify various kinds of macroeconomic crises. Table 1 provides definitions for the seven types of crisis in their taxonomy.

Table 1. Description of crisis types in the taxonomy of Reinhart and Rogoff (2009) (R&R).

Crises defined by quantitative criteria:

1. *Inflation crisis.* Sustained annual inflation exceeding 20% (R&R, pp. 4–5).
2. *Currency crashes.* Annual exchange rate depreciation of 15% or more (R&R, pp. 5–6).
3. *Currency debasement. Type I*: Reduction in the metallic content of coins in circulation of 5% or more. *Type II*: New currency replaces a much-depreciated earlier currency (R&R, pp. 6–7).
4. *Bursting of asset price bubbles.* Cumulative decline of 25% or more in real equity prices (R&R, p. 250).

Crises defined by occurrence of an event:

5. *Banking crisis.* Either (1) bank runs that lead to the closure, merging or takeover of financial institutions by the public sector, or (2) closure, merging, takeover or large-scale government assistance of multiple financial institutions in the absence of a bank run (R&R, pp. 9–10).
6. *External debt crisis.* Outright default on a national government's debt issued under another country's jurisdiction (R&R, pp. 10–12).
7. *Domestic debt crisis.* Default on a national government's debt issued under its own jurisdiction where the debt is typically owned by residents of the country (R&R, pp. 13–14).

Four types of crisis are defined using a quantitative criterion while the other three rely on the occurrence of a specific event. The first three types of crises represent cases where a currency's purchasing power declines sharply (*inflation crises*, *currency crashes* and *currency debasements*). The fourth and fifth types are cases that reflect asset value declines, either a large across-the-board equity price decline (*bursting of asset price bubbles*) or a large decline in bank net asset values (*banking crises*). The last two types of crises refer to defaults on government debt (*external debt* and *domestic debt crises*).

Crises vary in the extent to which accounting is implicated as an underlying causal factor. For instance, the inference that poor accounting leads to the inflating and bursting of asset bubbles and ensuing scandals is reflected in the history of post-crisis securities regulation in the USA and Britain (Littleton 1933, Chatfield 1974, Banner 1997, Baskin and Miranti 1997, Partnoy 2000, Ribstein 2003). Accounting evolution has been strongly influenced by waves of business failures (Littleton 1933). For example, bank minimum capital requirements and mandatory reporting to the federal government were required under US law in the 1860s (Huntington and Mawhinney 1910, pp. 330–362) in response to Civil War crises. Since crises arising from government defaults or currency degradation have only indirect links to corporate accounting and reporting, we focus primarily on asset bubbles and banking crises.[3]

2.2. *What is the economic function of accounting?*

Originally, accounting aided entrepreneurs in making decisions. In this sense, managerial accounting likely provides the initial demand for accounting information because it is needed to fulfil organisational goals (Waymire 2009) as well as monitor and evaluate employees and agents, often labelled as stewardship.[4] Thus, reporting to equity owners and debtholders is a secondary or tertiary demand for accounting that emerges only when an enterprise grows in size and complexity.

The core function of accounting is to promote enterprise survival and health by creating value through production and subsequent market exchange with customers. In other words, accounting coordinates transactions within the firm (Ball 1989) analogous to how prices coordinate market interactions (Hayek 1945). Organisations demand accounting systems that are 'robust' – that is, they function effectively across a wide range of economic circumstances. Thus, a better accounting system is one that provides feedback to guide managers towards better planning and control decisions that increase organisational fitness. Robust accounting practices are likely those that are consistent with broad principles that have stood the test of time (Basu and Waymire 2010, Dickhaut *et al.* 2010a).

For accounting to be a plausible primary factor in contributing to an economic crisis, one has to argue that a given crisis is the result, at least in part, of using accounting practices that have poor feedback properties. For example, fair value accounting could encourage excessive asset sales by banks in a declining economy due to minimum capital requirements (SEC 2008).

2.3. *Focal questions*

Figure 1 provides a simple timeline showing two stages of an economic crisis that we use to frame our analysis. One is a 'pre-crisis' stage when equity values and other asset prices are increasing and presumably overshoot their fundamental values. The overriding question for accounting here becomes: is weak accounting causing the bubble? A second 'crisis' stage is when asset prices 'crash' after their former escalation and calls for reform invariably follow. The main question for accounting at this stage becomes: is weak accounting evident in the rubble of the crisis, and can we reform accounting successfully? We organise the rest of the paper around these focal questions.

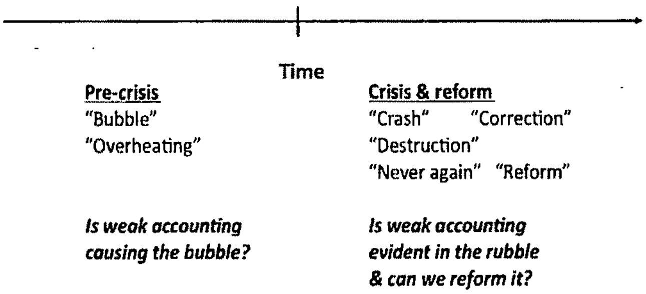


Figure 1. Stages in an economic crisis that involve accounting.

3. Can weak accounting cause an economic crisis?

We first consider the possibility that accounting is a primary force in causing a crisis, and then consider various ways in which it could play a secondary role.

3.1. *Is accounting a primary causal factor in economic crises?*

The recent global economic crisis stemmed from a bank panic in the USA. Gorton (2009, 2010) argues that the recent US crisis is similar to banking panics of the late nineteenth and early twentieth centuries. The recent crisis started in a 'shadow banking' system that had grown up around securitised loans and the demand for collateral in markets involving the sale and repurchase of securitised assets ('repo'). These security markets were highly sensitive to changes in the fundamental value of real estate assets underlying securitised loans. The 'shock' that led to the crisis was the bursting of a real estate price bubble that was caused by low-interest-rate monetary policies and government subsidisation of (and relaxation of lending requirements for) sub-prime homebuyers (Rajan 2010).

Declines in real economic activity during a crisis can spill over to other economies through trade and capital flows. In response, governments often undertake monetary and fiscal stimulus as well as regulatory reform (e.g. Allen and Gale 2007). This has been the case with the most recent crisis (Reinhart and Rogoff 2010, pp. 203–247).

Did accounting play a major role in the recent crisis? Critics alleged that fair value ('mark-to-market') accounting made the crisis worse than it would have been otherwise (SEC 2008 summarises these criticisms). Specifically, a frequent allegation was that fair value accounting is procyclical because it encourages risk taking in expansions when holding gains increase income and encourages asset liquidations in downturns because large write-downs of risky assets lead to violations of the minimum capital requirements for financial institutions.[5] Research reviews by Barth and Landsman (2010) and Laux and Leuz (2010) conclude that fair value accounting likely played only a secondary role in the recent financial crisis.[6]

This view is consistent with quantitative evidence from recent economic crises. Bowen *et al.* (1989) examine stock price responses to corporate earnings announcements before, during and after the market crash in October 1987. Corporate earnings releases were frequent in the crash period and the following eight trading days. However, their evidence does not support the hypothesis that earnings announcements played an important role during the crash period.

Keating *et al.* (2003) find little evidence that the 45% decline in Internet stock prices during spring 2000 was caused by newly disclosed information in first-quarter accounting earnings or other non-financial indicators. Rather, their evidence suggests that the Internet firms' stock price crash was likely caused by changes in investors' valuation models leading to a re-assessment of previously disclosed annual report information.

Chaney and Philipich (2002) examine potential spillover effects from the Enron scandal that engulfed Andersen. Their evidence suggests a role for accounting fraud in stock price revaluations for other Andersen clients with a stronger effect for clients of the firm's Houston office that had audited Enron. However, these effects were smaller than events typically described as stock market crashes. In addition, Nelson *et al.* (2008) suggest that the documented effects partly reflect confounding events.

Other studies suggest that accounting information and related frauds did not play a primary role in the October 1929 stock market crash. Considering dividends to be a proxy for earnings, White (1990) concludes that information on weaker earnings prospects was not the proximate cause of the 1929 crash. Benston (1969) reaches a similar conclusion based on the lack of significant legal actions for accounting fraud in the few years before and after the 1929 crash. Kindleberger (2000) suggests that the period of the late 1920s, as with other price bubbles, was associated with accounting irregularities, but the main evidence he notes is the famous Krueger and Toll fraud cited in Congressional testimony leading up to the passage of the Securities Acts (see also Pecora 1939, Flesher and Flesher 1986).

More generally, the perception that poor accounting plays a role in the creation and bursting of asset bubbles has a long pedigree. Chatfield (1974, p. 81) writing on the 1720 bubble and crash in the shares of the South Sea Company notes:

> Like the 1929 crash, the South Sea Bubble's collapse led to demands for better accounting verification. Charles Snell, a writing master and accountant, was retained by the defense to examine the records of Sawbridge and Company, a subsidiary of the South Sea Company.... His published report was inconclusive. He had discovered fictitious entries, but offered no opinion as to why they were made.
>
> The final result of this speculative frenzy was popularly known as the Bubble Act of 1720. It aimed to correct four evils: (1) excessive stock speculation, (2) formation of fraudulent joint stock companies, (3) the use of corporate prerogatives by unincorporated firms, and (4) the use of corporate charters to conduct inappropriate types of businesses. This Act not only denied limited liability status to all firms not incorporated by Crown or Parliament, but was used as a policy instrument to restrain the formation of new corporations. Its effect was to inhibit the natural growth of limited liability companies for 100 years.

The view that the Bubble Act was written to protect investors from excess speculation and subsequent losses when bubbles burst has persisted across two and half centuries of historical and legal scholarship (see Harris 1994, p. 611). Unfortunately, this belief, like many other 'widely accepted facts', does not comport with the historical evidence.[7] The most basic problem with an investor protection rationale for the Bubble Act was that the law was enacted *before* the crash in the share price of the South Sea Company.[8] Harris (1994, p. 612) reviews the features of the Bubble Act and its legislative history, and concludes that this legislation more likely served to 'hinder alternative investment opportunities and to divert more capital to South Sea shares'. In economic parlance, the Bubble Act, like many other laws, probably served private interests rather than a broader public interest (see also Tabarrok 1998, Mahoney 2001, 2003).

McCartney and Arnold (2002) examine whether weak accounting was responsible for the British 'Railway Mania' of 1845–47 and the subsequent collapse in railway share prices. They find that accounting practices changed as railway technology evolved, and that disclosure levels increased monotonically during 1840–55, with a sharp increase in balance sheet disclosures during 1845–50. Published railway company financial statements became more standardised and detailed as the industry matured. Arnold and McCartney (2003) find that despite long-standing allegations there is essentially no documented evidence of widespread fraud or deceptive accounting in railway financial statements before or during the mania, although there are a few documented instances of dividends being paid out of capital.

In sum, while there is a long-standing perception that accounting is an important factor in the occurrence and bursting of asset bubbles, there is little direct evidence to indicate that accounting plays a primary role. Gorton (2010, pp. 130–132) suggests that FASB rules on fair value accounting contributed to the recent US crisis, but he clearly sees its role as secondary. We next discuss this issue.

3.2. *Can accounting play a secondary role in economic crises?*

Is it possible that weak accounting could play a secondary role by exacerbating a crisis or an asset price bubble? Consider a security subject to a Keynesian 'beauty contest' in which investors believe that price is determined by other investors' beliefs about what further others will pay for the security in the future rather than its intrinsic value based on long-run dividends (Keynes 1936). If such effects are magnified when accounting signals poorly reflect fundamentals, then weak accounting could exacerbate a bubble even if it was not a primary cause. We review both experimental and archival capital markets research bearing on this question.

There is a considerable literature on asset price bubbles and crashes in laboratory markets (cf. Caginalp *et al.* 2000). Porter and Smith (1994) is a representative study. They examine an experimental market for a security that pays a mean dividend of 24 cents in each of 15 periods reflecting an expected value over four possible outcomes. Traders can buy, sell or sell short the security. Porter and Smith show that the price at which the security trades significantly exceeds fundamental value in early periods and then declines dramatically in later periods. This basic pattern is robust across a wide range of market conditions. Asset bubbles are less severe typically only when subjects participate sequentially in multiple identical experiments where uncertainty is modest (Hussam *et al.* 2008).

Hirota and Sunder (2007) demonstrate experimentally that price bubbles are strongly affected by investor horizon. Horizon matters to the extent that investors plan to liquidate their position prior to the realisation of dividends. Thus, investors with short horizons would be more likely subject to Keynesian beauty contests since they forecast the price at which they can sell rather than estimate fundamental value. Hirota and Sunder show that markets with short-horizon investors are more likely to experience a bubble and crash of the type described by Porter and Smith (1994).

Dickhaut *et al.* (2010b) report experimental results indicating that the tendency of asset prices to bubble and then subsequently crash is likely a more general phenomenon attributable to asset durability. Experimental markets where assets perish and cannot be re-traded do not experience bubbles. Rather, asset price bubbles are observed only in cases where assets can be re-traded in the same period after an initial transaction has occurred.

Several experiments investigate how differential private information about fundamental value affects market prices (Forsythe *et al.* 1982, Plott and Sunder 1982, 1988). However, little research investigates whether public accounting information about a security's fundamental value alters an asset's propensity to bubble. One exception is Hobson (2010), who runs an experiment to test whether an asset market susceptible to bubbles shows improved performance when investors are provided with a decision aid that makes the fundamental value of a security more salient. His findings are mixed in that investors trade based on fundamental value to a greater degree when the decision aid is available, but this tendency is less pronounced in markets that are more prone to price bubbles.

Many archival capital markets studies of individual crises reach similar equivocal conclusions. For example, Mitton (2002) explores the relation between various corporate governance factors and firm-specific stock returns during the 1997–98 East Asian financial crisis. His evidence suggests that firms making higher quality disclosures (as proxied by auditor size and whether the firm had securities traded in US capital markets) performed better during this crisis.

Using data from the late 1920s, Barton and Waymire (2004) test whether NYSE-traded firms with more transparent reporting practices experienced better performance (i.e. less negative returns) during the market crash in October 1929. Their sample firms vary considerably in a proxy for reporting quality that is correlated with incentive-related variables. However, endogeneity issues cloud any interpretation of their evidence. Without a correction for endogeneity, Barton and Waymire find that firms with higher quality reporting policies experienced *more* negative returns. With a correction for endogeneity based on errors-in-variables, the association between reporting quality and October 1929 firm-specific stock returns is reversed. Thus, inferences depend crucially on whether their correction for endogeneity actually worked, and it is unclear how well endogeneity problems can be addressed using errors-in-variables methods (Leftwich 2004, Larcker and Rusticus 2007).

Lang and Maffett (2010) use an international sample to examine the association between reporting transparency and stock returns during periods of stock market downturns. They identify market downturns based on large negative returns akin to Reinhart and Rogoff (2009). They argue that market downturns are related to reduced liquidity, which varies through time and is affected by transparency levels. Their evidence comports with the hypothesis that higher reporting transparency is associated with more consistent liquidity that is less subject to large declines during downturns.

Overall, the available evidence suggests that accounting quality and reporting transparency are related to stock price behaviour during a crisis, but this evidence is based on a few studies. Further, the causal links between reporting quality and investor behaviour during a crisis are not well understood, especially at an experimental level. A clearer understanding requires that we develop theories of how the feedback effects of accounting might change during a crisis and how 'better' accounting might reduce the extent to which asset markets are susceptible to bubbles. For instance, fair value accounting based on current market prices and expectations could cause market prices to diverge even further from fundamentals during a bubble compared to (conditionally) conservative accounting estimates that are more robust to speculative excesses in asset markets.

4. Can weak accounting be identified and reformed after a crisis?

In this section, we consider whether and how weak accounting practices can be identified after an economic crisis. We begin by analysing the forces driving accounting evolution and how these forces might play a bigger role in a crisis. Following this, we discuss in more detail how these evolutionary forces can be identified at differing hierarchical levels ranging from micro-level accounting norms up to broad accounting principles and accounting standard-setting institutions.

4.1. *Accounting evolution as a different perspective on accounting change*

Empirical analysis of the determinants of corporate accounting practice has been the subject of research interest for decades (Watts and Zimmerman 1986, Fields *et al.* 2001). The term 'accounting practice' is a catchall that includes different accounting methods (e.g. straight-line vs. accelerated depreciation) as well as variation in their implementation (e.g. a five-year vs. seven-year useful life under straight-line depreciation). At a higher level, accounting practice is strongly influenced by broad general principles (e.g. cash vs. accrual accounting) that influence the fundamental measurement properties of an accounting system – for example, depreciation expense is not computed under a pure cash-based system since fixed assets are not capitalised.

Much prior literature views managers as 'choosing' a portfolio of accounting policies from those available under Generally Accepted Accounting Principles (GAAP). Accounting practice changes because regulators alter the accepted set of methods under GAAP and/or managers choose differently from the accepted set (Watts and Zimmerman 1990). Managers' and standard-setters' choices thus drive accounting practice, and these choices are influenced by both economic and political forces (Watts 1977, 2006) that respond to changes in the economic environment (Ball 1980). This literature provides few insights into how accounting evolves over time because it does not incorporate path dependence arising from prior accounting choices (Basu 2003) nor does it analyse how economic selection would influence accounting practice.

For present purposes, accounting evolution is the change through time in the set of accounting methods, the specific parameterisations of those methods and broad principles applied within a population of organisations. Accounting evolution works in part by the economic environment 'selecting' firms to survive in a manner that correlates with the firm's accounting practices. An accounting practice might be selected preferentially if its use leads managers to make decisions that increase its survival prospects, say by producing greater profits.[9] Conversely, a practice might be selected against if its use is associated with reduced survival prospects.

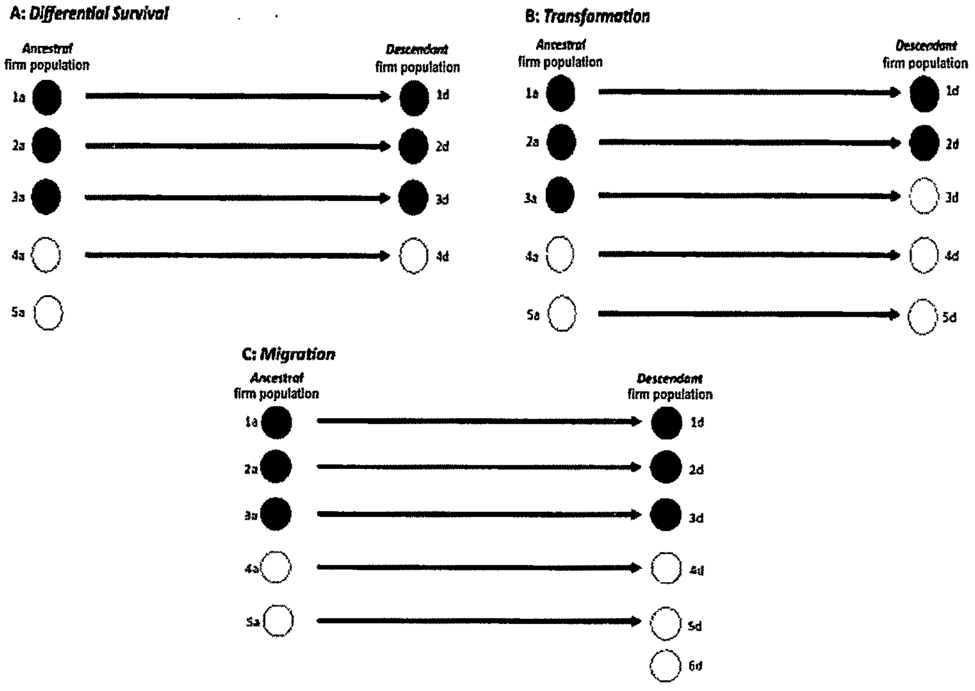
Byrne (1937, pp. 368–371) describes the process by which accounting principles come to be selected preferentially in organisational survival:

> In the development of any field, principles are discovered which represent the fundamental truths on which the field of knowledge rests. These principles are applied in the working out of problems that arise, and gradually, rules of practice evolve which, over a period of time, become accepted to a greater or less degree as reflecting the oft-recurring cases ...
> [I]nherent in accounting principles are business laws which must be obeyed if in the long run the enterprise is to survive ... It should be apparent, however, that the basing of financial policies upon accounting statements which in turn are not prepared with fundamentally right accounting *principles*, may lead to courses of action which, if too long pursued, will adversely affect the health of business. It is in this sense that the fundamental principles of accounting may be said to be coercive and self-executory. (*emphasis* in original)

4.2. *Introducing a scientific model of evolution*

The bridge from Byrne's conjecture to a more concrete representation of accounting evolution lies in research that formalises the components of evolutionary change in any biological, cultural or social system (Price 1970, 1972, 1995, Frank 1995, Page and Nowak 2002, Kerr and Godfrey-Smith 2009). Consider a population of firms for which we can catalogue the set of accounting policies (i.e. 'accounting practice') used at both the start and the end of a given time period. A change in accounting practice could occur during the period for several reasons. First, firms may change their mix of accounting practices, either because managers make a different voluntary choice or because standard-setters ban a prior practice (or more rarely, permit a previously banned practice). Second, new firms may be created and these new firms may choose a different mix of accounting practices than existing firms. Finally, some firms with unique accounting practices may fail more or less often than the modal firm.

Figure 2 depicts these three types of population change. The population at the start of a period is referred to as the ancestral population and the end-of-period population is the descendant population. The linked circles in panels A–C refer to a given firm. Filled circles and open circles distinguish firms with a different characteristic – for example, firms with filled circles could use a straight-line depreciation method while open-circle firms might use an accelerated method. The arrows between ancestral and descendant entities indicate the flow of time.


A: Differential Survival
Ancestral firm population
Descendant firm population
1a
2a
3a
4a
5a
1d
2d
3d
4d
B: Transformation
Ancestral firm population
Descendant firm population
1a
2a
3a
4a
5a
1d
2d
3d
4d
5d
C: Migration
Ancestral firm population
Descendant firm population
1a
2a
3a
4a
5a
1d
2d
3d
4d
5d
6d

D: Change in population means (Δavgp)
[shaded = 1; clear = 0]

	Ancestral population	Descendant population	Δavgp	Components
A: Differential survival	.6 (3 shaded & 2 clear)	.75 (3 shaded & 1 clear)	+0.15	cov (rcona, pa) = 0.15 avg [c_{ij} (pd_j − pa_i)] = 0 cov (rcond, pd) = 0
B: Transformation	.6 (3 shaded & 2 clear)	.4 (2 shaded & 3 clear)	-0.20	cov (rcona, pa) = 0 avg [c_{ij} (pd_j − pa_i)] = -0.20 cov (rcond, pd) = 0
C: Migration	.6 (3 shaded & 2 clear)	.5 (3 shaded & 3 clear)	-0.10	cov (rcona, pa) = 0 avg [c_{ij} (pd_j − pa_i)] = 0 cov (rcond, pd) = 0.10

Δavgp = cov (rcona, pa) + avg [c_{ij} (pd_j − pa_i)] − cov (rcond, pd)

Figure 2. Types of changes between ancestral and descendant populations.

Panel A shows population change for the case where one firm (firm 5) does not survive into the descendant population. This type of population change represents a selection effect where filled circles are selected preferentially and are more likely to survive. Panel B shows a case of transformation where one entity (firm 3) takes on a different character in the descendant population than it had in the ancestral population. Panel C shows the case where migration into the descendant population by a new firm takes place with no connections to any firm in the ancestral population. Prior accounting research has typically focused on transformation (i.e. changes in accounting practice of surviving firms over short periods) and has largely neglected selection and migration.

Formally, evolution is represented by the change in some measurable property of the population over time. For example, accounting evolution might be measured by the population mean of a 0–1 indicator that assumes a value of 1 (0) for filled (open) circles. Assume there are *na* and *nd* entities in the ancestral and descendant populations, respectively. Let pa_i and pd_j denote the pertinent 0–1 indicator variables for firms in the ancestral and descendant populations (indexed by *i* and *j*, respectively).

A measure of the change in the population-wide average of the 0–1 indicator signifying an accounting practice (denoted $\Delta avgp$) is:

$$\Delta avgp = \left(\sum_j pd_j\right)/nd - \left(\sum_i pa_i\right)/na. \tag{1}$$

The relative connectedness of an ancestor entity (*rcona*) and a descendant entity (*rcond*), respectively, reflects the degree to which an entity is connected to other entities measured relative to the connectedness of other entities. Define c_{ij} as a 0–1 indicator equal to one if there is a connection between firm i in the ancestral population and firm j in the descendant population (this relation can be many–one due to mergers or one–many because of carve-outs). In Darwinian terms, the ability of an entity to be represented in the descendant population refers to its 'fitness'. *rcona* and *rcond* are defined as follows:

$$rcona_i = \sum_j c_{ij} / \left[\left(\sum_i \sum_j c_{ij}\right)/na\right] \tag{2a}$$

$$rcond_j = \sum_i c_{ij} / \left[\left(\sum_i \sum_j c_{ij}\right)/nd\right]. \tag{2b}$$

Kerr and Godfrey-Smith (2009) show that the change in a measure such as $\Delta avgp$ can be decomposed into three components:

$$\Delta avgp = \mathrm{cov}(rcona,\ pa) + \mathrm{avg}[c_{ij}(pd_j - pa_i)] - \mathrm{cov}(rcond,\ pd). \tag{3}$$

Because *rcona* is a measure of realised fitness differences between ancestral entities, a non-zero covariance between *rcona* and *pd* implies that entities with different accounting practices build differential degrees of connectedness with the descendant population. In other words, the first term on the right-hand side of Equation (3) captures a *selection* effect. The middle term on the right-hand side of Equation (3) captures a *transformation* effect reflecting the extent to which an entity present in both the ancestral and descendant populations takes on a different character – that is, $pa \neq pd$. The final term captures the effect of *migration* or connections of a descendant entity to multiple ancestral entities.

Panel D of Figure 2 shows the calculated values of $\Delta avgp$ and its components for the three cases in panels A–C. Note that selection in panel A is reflected only in $\mathrm{cov}(rcona, pa)$, transformation in panel B affects only $\mathrm{avg}[c_{ij}(pd_j - pa_i)]$ and migration in panel C changes only $\mathrm{cov}(rcond, pd)$. Thus, a key feature of this analysis is that transformation is only one process driving accounting evolution. This has important implications for whether we can identify various forces behind accounting evolution and how those forces impact accounting practice at the level of specific methods vs. broad principles. We now turn to a discussion of this issue.

4.3. *Identifying the components of accounting evolution over time*

As already noted, Equation (3) is completely general in that it applies to change within any biological or cultural system subject to evolution. The earliest formulations of this model by Price (1970, 1972) dealt with the effects of the first two terms: selection and transformation. Within a biological system, the selection term would refer to the extent to which a specific genotype would be associated with a differential likelihood of survival into the descendant population. The transformation term captures the extent to which the average character value is changed, perhaps through mutation of the gene (Frank 1995).

Different environmental changes affect how well a particular genotype can thrive under altered conditions. The rate of evolution need not be constant across time, although the average rate might appear to be very slow if measured over sufficiently long periods (e.g. Weiner 1994).[10] This is because the earth has experienced periodic Ice Ages that drastically change natural habitats in evolutionarily short timeframes but more moderate climates have returned cyclically (e.g. Schörghofer 2007). Major changes to the environment can be associated with disproportionately large (i.e. 'punctuated') changes in the survival of specific genes and even species (Eldredge and Gould 1972, Gould and Eldredge 1993).

The same forces of selection, transformation and migration are likely at play in the evolution of economies and industries. Firms presumably seek to improve their survival prospects within their environment (Alchian 1950, Nelson and Winter 1982, Cyert and March 1992, Radner 1996). Decisions are made for their adaptive value in improving (but not necessarily optimising) survival prospects within an uncertain and ever-changing environment (Knight 1921, Simon 1997). In this sense, the effect of selection on firms and industries is to produce outcomes more consistent with 'survival of the fitter' rather than a global optimum akin to a Panglossian 'best of all possible worlds'. Thus, economic evolution is also likely subject to cycles of large change characterised by the 'creative destruction' of firms and industries and the subsequent emergence of new organisations (Schumpeter 1942).

Figure 3 illustrates our expectations of how the three evolutionary forces have differential impacts at different stages of an economic crisis.

At the onset and early stages of an economic crisis, firms begin to fail starting with the weakest, and selection plays a stronger role than usual. As the crisis intensifies, weak surviving firms cast about for survival strategies, and often mimic the behaviour of firms that seem to be coping better with the crisis, making social transmission increasingly important. Finally, near the end and after the crisis, new firms emerge to exploit the niches once occupied by failed firms as well as niches suddenly exposed in the new environment, resulting in increased migration.

Accounting is an economic institution that has long been seen as subject to evolutionary change (Littleton 1933). The major challenge in linking Equation (3) with evolutionary change in accounting is to identify how much accounting choices are affected by selection

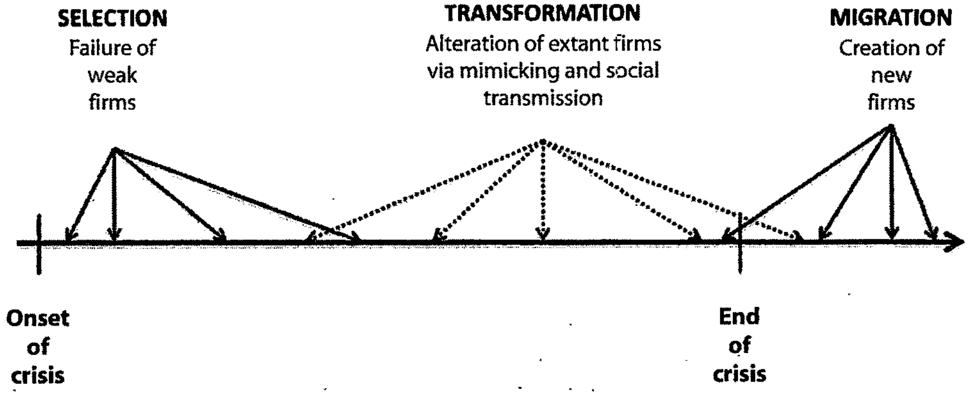


Figure 3. Components of evolutionary change in crisis periods.

vs. transformation via social transmission whereby some firms mimic others' accounting choices for reasons that are not motivated by survival. For some managerial actions, it is more obvious how making the 'wrong' decision might threaten a firm's survival. Entering an emerging product market or adopting a new production technology entails greater risk of failure when competitors also innovate in pursuit of greater market share (Carroll and Hannan 2000, pp. 368–371). Major product design and delivery decisions can be evaluated and refined *ex ante* using market research to identify decision alternatives subject to stronger selection effects.

In contrast, accounting practice at a highly granular level is very likely subject to weak selection effects. Consider again the asset capitalisation and depreciation decision. If firms in an industry use an average useful life of 10 years to depreciate their assets, will a choice of 8 or 12 years of useful life have a material effect on a firm's survival prospects? In other words, are reasonable differences in depreciation useful lives likely to be 'big enough' to produce material covariance between the accounting practice and firms' survival? In all likelihood, the answer to this question is no.[11]

Identifying the selection effect of accounting is further complicated because an accounting practice has only indirect impact on organisational survival. Accounting is a tool that informs managerial decisions, whose outcomes are subject to the force of environmental selection. That is, the choice of a particular accounting practice is a choice about the quality of a decision aid rather than an economic choice per se. Thus, while a managerial decision may have important survival consequences (e.g. the decision to invest in a new production technology), it is less obvious how a specific accounting policy (e.g. asset depreciation) will influence organisational fitness absent a clear understanding of how the choice of depreciation policy affects the more fundamental investment decision. As a consequence, identification of accounting selection is difficult because the selection effect is weak and indirect and there are always other forces affecting managerial decisions and firm survival. Consistent with this reasoning, mark-to-market accounting was blamed by some for the 1929 crash (Walker 1992) and the recent financial crisis (SEC 2008), but a reliance on historical cost accounting was blamed for extending the 1980s Savings and Loan crisis (Benston 1985).

The net result is that there is no clear accounting analogue to 'marketing research' whereby a firm can evaluate the effectiveness of an accounting judgment *ex ante*. Empirically, this is manifested in the weak statistical association between corporate accounting decisions and economic variables expected to influence such decisions (Christie 1990, Watts and Zimmerman 1990, Fields *et al.* 2001). Translated within the context of Equation (3), this implies that the covariance between micro-level accounting practices and firm survival is likely indistinguishable from zero in most cases.

If micro-level differences in accounting practice are subject to only weak selection effects, then accounting evolution is more likely influenced by socially transmitted norms and conventions that emerge when firms mimic the choices of other 'higher status' companies (Jamal *et al.* 2005, Sunder 2005). As a result, the second term in Equation (3) becomes more important due to human action derived from social transmission – that is, 'When in Rome do as the Romans do' (Coleman 1990, pp. 241–299, Richerson and Boyd 2005). Such effects become a greater force empirically when accounting choices have weak indirect economic consequences (Reppenhagen 2010).

4.4. *Analysing the historical record to detect accounting evolution in action*

There is a long history of professional knowledge sharing among US accountants that facilitates the social transmission of micro-level accounting practices (e.g. Miranti 1986). This historically has occurred mainly through practice-related publications and coordinated professional education. The *Journal of Accountancy* produced a monthly column beginning in 1914 titled 'The

Student's Department' that dispensed information on, and debated the merits of, various features of contemporary accounting practice (Moonitz 1970, pp. 147–149). The American Institute of Accountants (AIA) also produced a series of 33 'Special Bulletins' on the state of specific current practices between January 1920 and December 1929 (Moonitz 1970, pp. 149–155). Similarly, the Institute of Chartered Accountants in England and Wales (ICAEW) issued 29 'N Series' recommendations on accounting principles between 1942 and 1969 (Zeff 2009). The AIA initiated an annual survey of corporate accounting and disclosure practices, *Accounting Trends and Techniques*, in 1946 (Gregory 1952) that continues to this day. These kinds of professional knowledge sharing arrangements likely increased homogeneity in corporate accounting practice (Basu *et al.* 2009).

Selection effects in accounting are likely far more significant for broad general accounting principles. A weak selection effect for depreciation useful life differences does not imply that recognition of assets under an accrual accounting system has no important selection effects. Firms using a cash-based accounting system or a single-entry accounting system would likely perform more poorly than other firms using an accrual-based, double-entry system, and thus have poorer survival prospects. This is the likely link between evolutionary dynamics and Byrne's conjecture that accounting systems based on weak principles would likely be selected against because they 'lead to courses of action which, if too long pursued, will adversely affect the health of business' (1937, pp. 368–371).

The process by which general accounting principles became recognised and embedded in accounting practice was largely inductive (Littleton 1953). The vehicles for defining accounting principles involved a combination of individual firm action, the spread of knowledge through professional interaction and the development of textbooks and other educational materials, the actions of regulatory and taxing authorities, and decisions in legal cases that affected how business income and net assets were measured (e.g. Zeff 1971, Miranti 1986, Ball 1989, Previts and Merino 1998).

Gilman (1939, p. 168) summarises the highly evolved state of accounting practice at the time when the first US standard-setting organisation was founded:

> [T]he accountant has come more and more to rely upon precedent as the justification for his various practices.
>
> There appears to be some similarity in this respect between law and accounting. The English common law consists of certain concepts, rules, theories, or principles based upon precedents. Similarly, there seems to have been developed a sort of common law in accounting. Like the English common law, it has not adequately been set forth in complete written form but has developed from practical experience. This body of opinion is the direct result neither of statute nor edict but was developed by the method of trial and error.

Thus, some general accounting principles such as conservatism, revenue realisation and historical cost have historical antecedents dating back many years, or even centuries, and took root in accounting practice by the early twentieth century.[12] The application of the lower-of-cost-or-market rule for inventories dates back to fourteenth-century Italy (Littleton 1941). Revenue realisation, historical cost and objectivity are derived in part from British legal cases regarding dividends and bankruptcy in the nineteenth century and the later implementation of income tax laws (Paton and Littleton 1940, pp. 18–21, Edey and Panitpakdi 1956, pp. 376–379, Chatfield 1974, pp. 97–98, 116, 255–260). An even older principle is that of double entry, which spread through Europe via the distribution of Pacioli's classic text (1494) (Chatfield 1974, pp. 49–50).

Table 2 summarises the selection, transformation and migration effects of accounting evolution for broad principles vs. specific, detailed accounting procedures such as depreciation useful lives. This table illustrates two important points. First, we expect that accounting selection,

Table 2. Accounting selection for various hierarchical levels of accounting choice.

Level	Selection $\mathrm{cov}(rcona_i, pa_i)$	Transformation $\mathrm{avg}[c_{ij}(pd_j - pa_i)]$	Migration $\mathrm{cov}(rcond_j, pd_j)$
Broad principles (e.g. accrual accounting)	Stronger effect than for specific practices	Weaker than for more specific accounting practices	Material only when new industries are frequent within the descendant population
Specific accounting practices (e.g. useful life for depreciation)	Weak effect	Driven by norms and conventions that emerge from mimicking behaviour	More likely new firms enter existing industries within the descendant population

Evolutionary Change Equation:

$$\Delta avgp = \mathrm{cov}(rcona_i, pa_i) + \mathrm{avg}[c_{ij}(pd_j - pa_i)] - \mathrm{cov}(rcond_j, pd_j).$$

This equation identifies three components of evolutionary change. The first component on the right-hand side represents the effect of survival correlated with accounting practices – that is, the degree to which the selection is associated with different types of accounting practices in the ancestral population (*pa*). The second term on the right-hand side of the equation – $\mathrm{avg}[c_{ij}(pd_j - pa_i)]$ – is a fitness-weighted average change in the individual values of *pa* and *pd*, and represents a 'transformation' component unrelated to selection per se. The final term arises from the effect of migrations into the descendant population that were not present in the ancestral population.

if it has a material effect, will be more evident at the level of general principles. This occurs because, at highly granular levels, accounting procedures likely have minimal effects on survival compared with more basic operating and financing decisions. This implies also that, as the level of accounting practice becomes more detailed, accounting evolution will be governed to a greater extent by norms and conventions that are socially transmitted through mimicking.

Second, we expect in most circumstances that the impact of migration on accounting evolution will be small. This certainly is true of economic crises where rate of new firm 'births' slows to a trickle. In macroeconomic expansions, migration can play a larger role because the rate with which new firms emerge accelerates. If these new firms are in entirely new industries, then it is possible that the effects of migration are substantial because there would be fewer existing firms to establish a social benchmark that could be mimicked by new firms. For example, the intensive use of stock option compensation by Internet firms and wide variation in their accounting for these options (e.g. whether cash inflows from option exercise should be classified as operating cash flows or financing cash flows, or whether the option grants should be treated as expense or equity) led to politically charged battles over appropriate accounting.

Crises that are long lasting and lead to broad declines in macroeconomic activity are more likely to motivate sweeping institutional changes. If powerful forces mobilise to supply the changes implicit in the heightened demand for accounting change, then accounting change will occur more quickly and be larger in magnitude. That is, the evolution of institutions that are highly responsive to crises will be characterised by 'punctuated' rates of change that are larger and more rapid following an environmental change (Eldredge and Gould 1972, Gould and Eldredge 1993).

It is likely that accounting evolution has been characterised by significant discontinuities consistent with punctuated equilibrium theory. The introduction and widespread adoption of LIFO was likely related to the surge in inflation after the Great Depression (Moonitz 1953, Davis 1982), and high inflation also likely accounted for the surge in LIFO adoption during the 1970s. Similarly, the expensing of R&D expenditures and intangibles in the USA appears to trace back to General Electric's adoption of more conservative accounting for intangibles after the Depression of 1893, and its write-down of $2 million of intangible assets to a nominal value of $1 in 1907, when its chief competitor, Westinghouse, was placed in receivership during the Panic of 1907 (Waymire and Basu 2007).

Changes in accounting regulations also appear to be correlated with economic crises. Extensive changes to bankruptcy statutes and the Companies Act followed economic crises throughout nineteenth-century Britain (Littleton 1933). Major changes to US investor protection laws occurred after the market crashes of 1907 and 1929, and the Enron and WorldCom scandals presaged passage of the Sarbanes–Oxley Act in 2002 (Grundfest 2002, Seligman 2003). More generally, between one-tenth and one-third of the evolution in major language families occurs in punctuated bursts when languages split from one another (Atkinson *et al.* 2008).[13] If major changes in accounting principles (e.g. enforcement of fair value accounting) are akin to splitting of languages and if accounting evolves like other languages, then a sizable share of accounting evolution is likely to occur in short punctuated bursts.

4.5. *Market and political forces for post-crisis reform*

An economic crisis generates demand for institutional change in accounting (Watts and Zimmerman 1979). This demand can emanate from private sector actors harmed by the failure of existing practice, but is fuelled by lawmakers and regulators who have an oversight responsibility for financial reporting, as well as policy entrepreneurs who may use crises to enact otherwise unpopular reforms (e.g. Romano 2005). Our previous Figure 3 depicted how the changing economic environment selected surviving firms and institutions similar to biological evolution. However, we emphasise that, unlike purely biological selection, economic selection and transformation of institutions depends significantly on the beliefs of human actors about these institutions' effectiveness. Figure 4 depicts when different actors likely respond to an unfolding crisis, and thereby alter the economic environment to possibly amplify or dampen the direct consequences of the crisis. This feedback effect has parallels to socio-cultural evolution (Boyd and Richerson 1992).

Figure 4 shows that market forces are set in motion at the initial stages of a crisis. As the economy enters a crisis, firms that are not selected out of existence by bankruptcy or acquisition cast about for ways to survive. As described earlier, they will search for appropriate responses by examining the behaviours of firms that are less affected by the crisis, as well as descriptions of successful actions in similar prior crises. Trade associations and other knowledge-sharing arrangements facilitate loosely coordinated responses soon after a crisis emerges. However, if

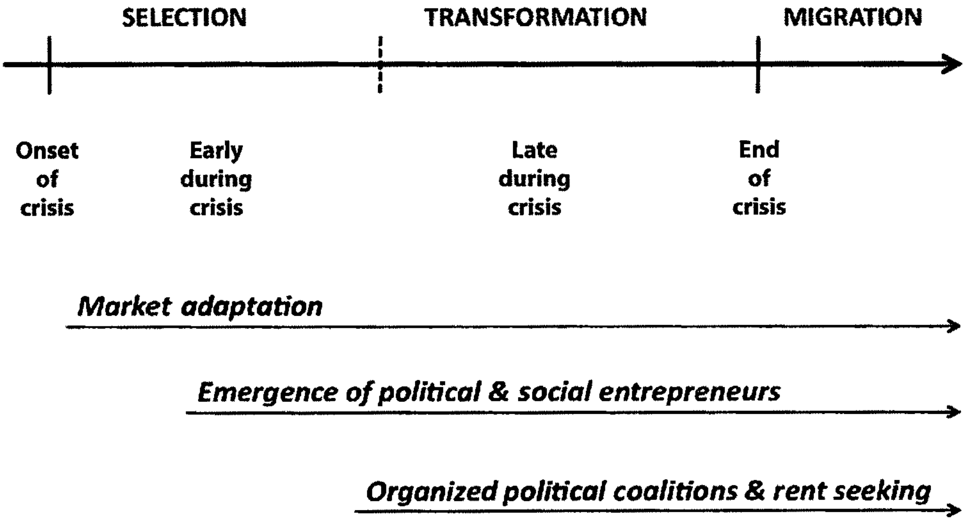


Figure 4. Accounting evolution in crisis periods through markets and politics.

firms face a Prisoner's Dilemma where the individually optimal action is inconsistent with the socially optimal action, then coordination and free-rider problems will likely surface. In such situations, firms acting individually will likely not ameliorate the crisis. The consequence is that the market may undersupply institutional change.

As the initial effects of the crisis are transmitted through the economy via bankruptcies, restructurings and layoffs, political pressure builds up on regulators and politicians to address the ongoing crisis. If there is sufficient pressure, public hearings will be held to identify potential causes of the crisis and possible remedies. Thus, there can be a post-crisis speculative frenzy in regulation that resembles the speculative frenzy in a market bubble (Ribstein 2003). Policy entrepreneurs step in to the breach with previously rejected pet proposals that they argue would have prevented the crisis. That is, as explained by Rahm Emanuel, former White House Chief of Staff, 'You never want a serious crisis to go to waste' (Rosenthal 2009). Furthermore, rent-seekers organise political coalitions to lobby for institutional change that would garner special favours for coalition members or raise the cost of their competitors (Tullock 1967, Krueger 1974). Such rent-seekers often stealthily fund the efforts of well-meaning reformers to avoid tipping off their political opponents (Yandle 1983, Tabarrok 1998). Since politicians and regulators prefer to respond to the electorate promptly, they frequently enact the pre-packaged policy proposals that have been kept on hold awaiting the crisis (Friedman 1982).

Friedman (1982, Preface, p. ix) succinctly describes the impact of a crisis on institutional change and the role of policy entrepreneurs:

> There is enormous inertia – a tyranny of the status quo – in private and especially governmental arrangements. Only a crisis – actual or perceived – produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around. That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes politically inevitable.

These political responses can either amplify or dampen the crisis, and it is often difficult to ascertain *ex ante* which directional effect will occur (Merton 1936). Almost by definition, a crisis is a period of heightened Knightian uncertainty or ambiguity (Knight 1921), in which actors are not sure how long the bad times will last, or even whether the economy could decline further. Individuals react more intensely to ambiguous situations (Knight 1921, Ellsberg 1961), often conflating the possibility of catastrophe with catastrophe itself. A recent example is the worldwide panic that followed the Severe Acute Respiratory Syndrome (SARS) outbreak in the early 2000s that eventually turned out to be much less catastrophic than portrayed in the popular press (Caballero 2010).

A crisis typically arises as a complex consequence of multiple interacting failures of safeguard mechanisms (e.g. Gawande 1999), some of which are hidden from public view and only come to light much later. Because the relevant information about the causes and immediate effects of the crisis are widely distributed and difficult to elicit and combine (Hayek 1945, 1975, Sowell 1980), people must act on information that is very limited relative to the information they need to fully comprehend the situation. Seeking to display confidence and ensure public trust in the enacted solutions, politicians and regulators often assert they have knowledge that they do not possess (Hayek 1975).

Given the inherent ambiguity of a crisis, politicians and regulators, like other humans, often revert to ideology to make sense of a novel situation (North 2005, pp. 38–64). While ideology often provides a coherent worldview, it may also induce a false sense of command of the situation, and lead to hubris in attempting to guide the economy to safety (e.g. Kling 2010). For instance, market sceptics may desire strict regulation to control exploitive business interests after a crisis. Their political opponents will likewise be ideologically prone to scepticism that stringent government regulation will favourably alter institutions that have organically arisen from past market interaction.

Because enactment and enforcement of laws take time, new laws may have little impact on the current crisis, either positive or negative. However, the economy could continue to worsen, leading to further regulatory actions that again have little immediate impact but potentially adverse long-term consequences. Indeed, it is rare that policymakers consider the possibility that current crises are the long-term consequence of past laws and regulations, likely because people are predisposed towards identifying and treating immediate and obvious 'causes' of problems (Lott and Fremling 1989).

Another potential problem with political responses to crises is that market forces conducive to beneficial change may be 'crowded out' by policymakers and political actors seeking to exercise regulatory power (Watts and Zimmerman 1979). While both market and political forces respond to crises, their impact can vary across different institutional environments. The new Varieties of Capitalism approach (e.g. Hall and Soskice 2001) differentiates between liberal market economies, where markets and firms coordinate most economic activity on a decentralised basis, and coordinated market economies, where non-market coordinating institutions (NMCIs) such as trade bodies and networks play an important role. Coordinated market economies can be better suited to develop effective market-based responses to crises because of existing links between individuals and firms. At the same time, economies with large state sectors may not obtain these benefits because political actors may seek to block coordination attempts by non-government institutions that would undermine their own regulatory powers (e.g. Hancké *et al.* 2007).

One advantage of market-driven changes is that they can be reversed if they prove disadvantageous in the long run. Thus, decisions that are voluntary and decentralised are less likely subject to undesirable consequences that were not foreseen at the time of the original decision. Changes in broad principles or institutions as a whole are more difficult to implement at the market level as the feedback effects supporting change are not likely discernible by individual managers nor are they readily implementable because of collective action problems. If implemented through a political process, the permanence of such changes makes them more susceptible to unforeseen negative consequences. In sum, adverse market-driven changes are less likely to survive whereas coerced changes through political forces may be sticky due to penalties enacted to make the institution work. Furthermore, the optimal changes in response to a crisis likely vary between different varieties of capitalism (Walker 2010).

5. Conclusions and opportunities for future research

The conclusions from our analysis are modest because we know so little about the relation between corporate accounting and economic crises. In evaluating whether accounting is a causal factor behind crises, extant evidence suggests that accounting is probably only a secondary causal factor that can amplify a crisis. In considering the relation between economic crises and accounting evolution, it is likely that we have not been asking the correct question. As such, the literature may be long on conjecture about how accounting 'evolves', but is short of serious understanding of how the evolution of accounting has been influenced by various economic, political and cultural forces. Finally, the deep links between economic crises and accounting evolution are largely non-existent. We clearly know that political forces are implicated often after a crisis, but we have little understanding of the basic psychological motives and long-term consequences of regulation.

The obvious conclusion from this paper is that considerable opportunities for future research exist. Accordingly, we close by highlighting opportunities for future research on the relation between economic crises and accounting evolution.

5.1. *Future research on accounting as a causal force underlying economic crises*

Opportunities for future research on the role of accounting during periods of economic crisis are considerable. As a precursor to more advanced work, it would be helpful to have a better descriptive database on how often accounting is implicated in an economic crisis historically. For example, if one took a large sample of crises like Reinhart and Rogoff (2009), how often is accounting cited in contemporary accounts of the crisis? If so, what kinds of accounting weaknesses are alleged? Are the issues described in these accounts raised by regulators, or do they come directly from market participants? If regulators and politicians raise issues about accounting, what kinds of legal and regulatory changes are fashioned in response to the crisis? We would also encourage more empirical work along the lines of Lang and Maffett (2010) searching for systematic relations between accounting quality and crisis severity over multiple crises.

What is the psychological mechanism that leads to repeated scapegoating of accounting after crises? Is it crowd psychology that demands that somebody be punished to atone for the harm suffered by many (Freud 1922, Reicher 2002)? Is it a belief that crises would have been prevented if only better information had been publicly available before the crisis? Is it a belief that regulators can make better decisions using only public information than can market participants acting on their private and public information?

More experimental work can provide insights on how accounting influences the propensity of a market to exhibit asset price bubbles. Hobson (2010) provides some intriguing results, but extensions could consider how specific features of the accounting system influence bubble–crash dynamics. Are bubbles and crashes more or less likely when audited accounting information is available? How is this relation affected by the availability of private information for some investors but not others? Does required use of fair value data during a bubble cause prices to depart even further from fundamentals both during the bubble and subsequently during the crash? Is it possible to also use such results to build agent-based models that could link better with empirical regularities observed in naturally occurring data?

5.2. *Future research on accounting evolution and economic crises*

We suggest that future research should focus on three areas: historical analyses; path dependency; and understanding how policies are shaped by crises. Our first area concerns historical analyses of economic crises, changes in law and the resulting accounting implications. The case law following crises can provide clues as to whether accounting issues surfaced in cases of corporate failure. In particular, historical description of various accounting issues arising from corporate failures would be useful.

Brief (1965) cites one historical example of how seemingly deficient accounting for fixed assets (i.e. replacement accounting) led to poor investment decisions by railroads and their subsequent failure. More generally, American case law addressing accounting issues dates back to the early nineteenth century (Reid 1988) and British case law dates back at least to the same period (Littleton 1933). This corpus of law could be evaluated over the period of the past two centuries (Mills 1993) to see how often accounting plays a role in cases involving corporate failures following economic crises.

Another implication of evolutionary change is that an evolutionary process gives rise to history (Boyd and Richerson 1992), or put differently, accounting evolution is path-dependent. Our second suggestion is that it seems plausible that phylogenies of accounting culture can be constructed to establish lines of descent of specific practices (Boyd *et al.* 1997). Constructing 'cultural phylogenies' of accounting theories and methods would allow us to better understand how new accounting methods originate, how these methods developed through time and are subsequently transmitted to different settings.

As one example, consider the accounting method for corporate mergers called 'pooling of interests' method.[14] Variants of the pooling method were seen in efforts to regulate California public utilities in the late 1920s (Waymire and Basu 2007, p. 15).[15] There is little quantitative evidence on the spread of this method to non-regulated utilities and the vehicles through which this method was socially transmitted.[16] More generally, an analysis of this type will be a useful precursor to simulation analyses that provide insights into evolution and selection of various accounting practices. This approach is used frequently in studying bio-cultural evolution (e.g. Bowles *et al.* 2003).

Finally, if human nature compels us to exercise control over our environment and crises are inevitable consequences of market economies, it seems reasonable to ask: can we ever acquire the kinds of knowledge that would allow us to successfully identify and implement reforms in the aftermath of an economic crisis? A necessary starting point for answering this question would be gaining a better understanding of how policy has historically been shaped by crises.

Is it the case that accounting practice and policy have been characterised by large changes consistent with punctuated equilibrium? One productive approach would be to examine how the politics of accounting regulation are affected by crisis. How often are there crises that are not followed by increased efforts to regulate corporate accounting and reporting? If so, what distinguishes these events from others where major reforms are attempted? A sample could be constructed from the crises examined by Reinhart and Rogoff (2009), and cross-indexed against accounting changes in different countries (e.g. Zeff 1971).

It would also be useful to examine the time series of crises for evidence that crises are caused in part by past attempts at reform. If stringent regulation is followed by longer term unintended consequences as individuals seek to avoid regulation, how do policymakers respond when evidence of such behaviour surfaces? That is, are we left with a 'vicious cycle' of crises followed by bouts of regulatory panic where we always treat observable symptoms without consideration of the long-term health of the economic system?

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Notes

1. This is partly because neo-classical economics primarily analyses equilibrium conditions during which stable behaviour is optimal for all parties. In contrast, crises are periods of severe economic discontinuity, and agents may have to drastically alter their behaviours even to survive. While beneficial in many ways, economists' tendency to rely on equilibrium analyses has limited the study and understanding of disequilibrium phenomena (Robinson 1962/2008, pp. 79–83, Colander *et al.* 2009).
2. *Jacobellis v. Ohio* 378 US 184 (1964).
3. Government defaults and currency degradation might also be relevant to accounting, but this relation does not primarily concern corporate reporting. For example, government off-balance sheet liabilities and a lack of accrual accounting by the US government are frequently criticised. In addition, calls for inflation accounting frequently follow large and persistent currency degradation.
4. We view managerial accounting as necessary not only for profit-seeking businesses but also temples and organised religions, clans, governments, armies, cooperatives, charities and various other organisations that control lots of resources. Similarly, we view entrepreneurs more broadly as organisation founders.
5. Allen and Carletti (2008) and Plantin *et al.* (2008) provide theoretical models showing how fair value accounting can lead to inefficiencies in the real decisions by managers of banks and insurance firms. However, Ryan (2008) argues that feedback effects from fair value accounting could have contributed only slightly to market illiquidity during the crisis. In response to political pressure, FASB relaxed application of its fair value rules in April 2010.

6. Another possibility is that lenders made insufficient provisions *ex ante* for potential loan losses during the real estate bubble and that more conservative estimates might have reined in some of the excessive lending. However, the human tendency to over-extrapolate from a short sequence of observations (e.g. Bloomfield and Hales 2002) as well as direct and indirect government subsidies likely swamped more conservative tendencies.
7. George Stigler (1988, p. 218), writing on the value of historical scholarship, remarks that a 'useful and somewhat surprising lesson of historical scholarship is that widely accepted facts are often wrong. Not minor facts suitable for a game of trivia, but pervasive facts that have a powerful influence on how a science thinks and works.' See also Hayek (1954, pp. 1–2).
8. Arnold and McCartney (2003, fn. 5) point out that Adams (1886, p. 85) portrays the UK Railway Regulation Act of 1844 as a consequence of the UK 'Railway Mania' by incorrectly dating the mania in 1844 before the act instead of the correct dates 1845–47, which inconveniently followed the act.
9. Maximising profit in a world of uncertainty is not necessarily synonymous with acting to improve survival prospects (Alchian 1950, Radner 1996). The idea that accounting can facilitate improved firm performance is at the heart of the hypothesis that double-entry accounting was responsible for the rise of capitalist organisations (Sombart 1919, Weber 1927, Schumpeter 1942, Mises 1949, Ijiri 1975, pp. 81–84).
10. Heads and Leuzinger (2011) recently reported the discovery of a 100 million-year-old fossil that appears anatomically identical to living splay-footed crickets, revealing that the genus has been in a period of 'evolutionary stasis' in a stable arid or semi-arid monsoonal habitat for at least the last 100 million years.
11. At this point, we assume a competitive environment and disregard the 'bright-line' use of accounting numbers for tax and regulatory purposes (e.g. Watts and Zimmerman 1986), which may have a sizable and direct impact on firm prospects. Such effects are clearly very important in some countries, industries and time periods than others, but less relevant to a general theory of accounting evolution.
12. Dickhaut *et al.* (2010a) survey recent neuroeconomics research showing that modern primates' brains operate in ways consistent with culturally evolved accounting principles. Thus, some modern accounting principles have links with neurological behaviours evolved over millions of years.
13. Pagel *et al.* (2006) estimate that about 22% of genetic changes among biological species occurs in punctuated bursts, which suggests that punctuated equilibrium accounts for a significant proportion of evolution in multiple domains.
14. Another prominent historical example is the practice of fully expensing research and development costs and leaving an intangible asset at nominal value on the balance sheet. Waymire and Basu (2007, pp. 31–40) describe the origins and subsequent spread of this practice in the USA after 1900.
15. Asset write-ups on the books of utilities in the 1920s occurred as a result of mergers, reorganisations and write-ups following asset appraisals (Barnes 1942, pp. 91–101, Twentieth Century Fund 1948, pp. 260–272, Bauer 1950, p. 102, Foster and Rodey 1951, p. 317). In response, a California regulatory commission required a utility to record assets bought in an acquisition to be recorded at 'original cost' to the seller with the excess of price over original cost written off to surplus or earnings (Twentieth Century Fund 1948, p. 261), a 1931 Wisconsin law required that subsequent acquisitions be recorded at 'original cost' and a 1933 New York law required that 'original cost' be applied retroactively to prior transactions (Foster and Rodey 1951, p. 293). However, Foster and Rodey (1951, p. 297) note 'As late as 1933 it apparently had not occurred to accounting authorities generally that original cost might be defined to mean cost to a predecessor company.'
16. Rayburn and Powers (1991) provide a history of the use of pooling of interests accounting in the USA. FASB (2001) banned usage of the pooling-of-interests method in the financial statements of publicly-traded US companies starting from July 2001.

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The European IFRS experiment: objectives, research challenges and some early evidence

PETER F. POPE[a]* and STUART J. McLEAY[b]

[a]*Department of Finance, Cass Business School, 106 Bunhill Row, London EC1Y 8TZ, UK;*
[b]*The University of Sydney, Sydney, Australia*

This paper provides an academic perspective on the development of the EU's harmonisation project based on International Financial Reporting Standards (IFRS), on the costs and benefits of IFRS adoption in Europe, and on the research challenges that arise. The paper reviews the accumulating academic evidence, emphasizing the effectiveness and transparency of the enforcement framework, and documenting the main lessons to be learned from the research programme on EU IFRS implementation conducted within the INTACCT network. Results on the consequences of IFRS adoption and the quality of implementation are far from uniform across Europe, and depend on factors reflecting preparer incentives and the effectiveness of local enforcement. The paper also outlines a possible alternative proposal for the organisation and development of enforcement activities in Europe.

Keywords: IFRS; IASB; harmonisation; incentives; enforcement; policy relevance

1. Introduction

From 2005 more than 7000 EU firms have been required to produce consolidated financial statements prepared under International Financial Reporting Standards (IFRS) (CESR 2007). Some 5323 of these firms are equity issuers. EU Regulation 1606/2002 requires that all listed European Union companies should report consolidated financial statements for financial years commencing on or after 1 January 2005 using IFRS. This important regulatory initiative has provided researchers with a useful setting for a large-scale 'natural experiment' in accounting, given that a clearly defined change that is outside the control of the investigators has taken place, allowing for potential observational studies that may draw inferences about causes and effects associated with the transition to IFRS.

As is the case in many regulatory initiatives involving radical change, the European Union proposal to harmonise financial reporting with IFRS was developed normatively, based on well-argued principles suggesting significant potential economic benefits which are discussed in greater detail later in this paper. However, the enabling regulation was put in place without

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*Corresponding author. Email: Peter.Pope.1@city.ac.uk

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the benefit of the empirical support based on prior experience that could have allowed the expected benefits of the switch to IFRS to be estimated and evaluated against estimated costs. Anecdotal evidence (and limited formal evidence) suggests that the switch from local GAAP to IFRS has imposed significant direct and indirect costs on corporate Europe, although the costs are likely to be distributed unevenly and dependent on the 'distance' from local GAAP to IFRS together with the implementation effort expended by firms and auditors, and corporate characteristics such as size and complexity. Evidence now accumulating shows that positive capital market benefits can arise as a result of IFRS adoption, although the institutional setting of financial reporting seems to be critically important for such benefits to accrue.

Our main objectives in this paper are as follows. In Section 2 we describe the background to the development of the EU's harmonisation project based on IFRS, briefly reviewing the historical development of the International Accounting Standards Board (IASB) and the EU policy debate on harmonisation of accounting standards. Section 3 discusses the implementation framework for IFRS that has been applied in Europe. Central to this evaluation is an apparent fault line centred on the effectiveness and transparency of the enforcement framework. We then consider in Section 4 the need for systematic evidence on the costs and benefits of IFRS adoption in Europe and identify some of the main methodological challenges that must be addressed for policy-relevant research to contribute to the ongoing development of financial reporting regulation in Europe. In Section 5 we review the evidence emerging from the EC-funded INTACCT project. A major pattern to these results is that accounting qualities often associated with user needs may have changed as a consequence of the introduction of IFRS, and, whilst some of the benefits from increased transparency appear to have been realised, the results are far from uniform across the Europe Union due to heterogeneous preparer incentives and differing enforcement mechanisms in member states. We conclude in Section 6 by proposing further research and discussing the need for a better enforcement framework.

2. Background

Academic research can provide useful feedback to accounting standard-setters (e.g. the IASB) and policymakers (e.g. the European Commission) on the accounting and economic consequences of regulatory change. However, in the context of the European IFRS experiment, it is first helpful to consider the objectives of the IASB and of the European Commission. It is also instructive to be clear about the mechanisms on which regulatory change in Europe relies. In this section, we review the context of IAS/IFRS and the way in which they have been introduced in Europe.

2.1. *The objectives of the IASB*

The IASB evolved from the International Accounting Standards Committee (IASC), the origins of which can in turn be traced back to the Accountants' International Study Group formed in 1966 by professional accounting bodies from Canada, UK and USA (Street and Shaughnessy 1998, Camfferman and Zeff 2007). The IASC was formed in 1973 and comprised professional bodies involved in setting their own standards in Australia, Canada, France, Germany, Japan, Mexico, Netherlands, UK, Ireland and USA. From 1992 to 2001 a working group reflecting Anglo-American perspectives coexisted alongside the IASC, known as the G4, comprising the standard-setters from Australia, Canada, New Zealand, UK and USA. The IASC had observer status at G4 meetings – hence the group became known as the G4 + 1. This body played an important role in triggering the formation of the IASC's Strategy Working Party in 1997, and eventually recommended the restructuring and replacement of the IASC by the IASB, an event that finally took place in April 2001.

It is instructive to consider how the focus and objectives of the bodies promoting international accounting standards have changed over time. Doing so helps point to an important fault line that has emerged in the regulatory framework for financial reporting, at least in Europe. Street and Shaughnessy (1998) record that the IASC was founded with the following objectives:

> (1) to formulate and publish in the public interest accounting standards to be observed in the presentation of financial statements and to promote their worldwide acceptance and observance; and
> (2) to work generally for the improvement and harmonisation of regulations, accounting standards and procedures relating to the presentation of financial statements.

We note that the IASC's remit explicitly included the promotion of worldwide *observance* of international accounting standards, as well as their acceptance. It also aimed to work for the improvement and harmonisation of *regulations* and *procedures* relevant to financial reporting, as well as the standards themselves. Therefore, the IASC at least implicitly recognised that successful harmonisation of financial reporting could not be achieved solely through the development and promotion of harmonised accounting standards. The regulatory environment of financial reporting was also being acknowledged as important.

Under Article 2 of the IFRS Foundation Constitution, as revised in 2010, the objectives of the IASB are defined as follows:

> (a) To develop, in the public interest, a single set of high quality, understandable, enforceable and globally accepted financial reporting standards based upon clearly articulated principles. These standards should require high quality, transparent and comparable information in financial statements and other financial reporting to help investors, other participants in the world's capital markets and other users of financial information make economic decisions.
> (b) To promote the use and rigorous application of those standards.
> (c) To promote and facilitate adoption of International Financial Reporting Standards (IFRS), being the standards and interpretations issued by the IASB, through the convergence of national accounting standards and IFRS.[1]

It is interesting that there seems to be a subtle shift away from the IASC's emphasis on broader harmonisation of regulations and procedures relating to financial reporting. In contrast, the IASB remit aims to produce *enforceable* standards but sidesteps the issue of how enforcement will arise by referring only to the *promotion* of '... the rigorous application of those standards'. The standards need to be enforceable, but it is not the IASB's problem if their standards are not enforced effectively. Some of those connected with the IASB have sometimes been heard to argue the importance of global consistency in application and enforcement. However, this is in a sense 'cheap talk'. We argue that, despite accumulating evidence that the quality of application of IFRS is inconsistent across countries, the IASB has been remarkably silent on the possible dangers of low quality adoption. Low quality adoption could occur as a result not only of a lack of accounting expertise on the part of preparers or auditors, but also from 'pseudo-adoption' where firms' managers claim to be complying with IFRS while doing something different, perhaps for private rent-seeking reasons or to privilege one group of corporate stakeholders (e.g. family block-holders) at the expense of another stakeholder group (e.g. creditors).[2] Whatever the cause might be, inconsistent application of IFRS will follow when enforcement is not as rigorous in some countries as in others. It is far from clear that under such circumstances the benefits predicted to follow from harmonisation based on IFRS will necessarily follow. We will discuss this issue further below.

2.2. *The objectives of IFRS*

As is made clear in the first of the IASB objectives, the IASB's intention is that IFRS should be relevant to the economic decisions of capital market participants and other, unspecified, user groups. The criteria that should determine relevance to users, and who those users are, are not spelled out in the IASB Constitution. Until recently the IASB has relied on the Framework for the Preparation and Presentation of Financial Statements published by its predecessor the IASC to provide the conceptual basis for its standards, including the identification of user needs. However, the IASB has made progress recently in revising parts of the Framework in the first steps towards defining its own Conceptual Framework to underpin its principles-based approach to standard-setting. The publication in September 2010 of Chapters 1 and 3 of the Conceptual Framework (IASB 2010) provides a clear indication of the IASB's current perspective on the objectives of financial statements and the characteristics that determine the usefulness of financial statement information.

According to Chapter 1 of the Conceptual Framework, (general purpose) financial statements should be oriented towards primary users who include existing and potential investors, lenders and other creditors who provide resources to the entity and who do not have contractual rights to demand information direct from reporting entities. Contractual rights to demand information depend on the nature of a user's claim and will dictate reliance on general purpose financial statements. For example, a bank has a right to demand private information in loan contracting but holders of public bond issues do not. Accordingly, the IASB considers investors and creditors who rely on published financial statements as the primary users towards whose needs IFRS should be oriented.

Chapter 1 of the Conceptual Framework then continues to identify the nature of the information that financial statements should contain. Essentially this reduces to information on the entity's economic resources and claims, a stock concept, and changes in those economic resources and claims, a flow concept. The IASB maintains that a combination of the stock and flow of economic resources and claims will broadly satisfy the varied information needs of the range of primary users considered to be the focus of financial reporting. Notably, whilst the IASB partly acknowledges the stewardship role of financial statements and suggests that in focusing on resource allocation decisions the Conceptual Framework captures this role, the term 'stewardship' is not used explicitly. The IASB also highlights the complementary roles of accrual information and cash flow information in helping users to estimate an entity's future cash flows. But what specific properties of financial statements and the numbers they contain are believed to be important?

The objectives laid out in the IASB Constitution refer only to general macro-level properties that should apply to international accounting standards. There should be a single set; and they should be high quality, understandable and enforceable. The financial statements that result should be transparent and comparable. The definition of 'high quality' could be traced to the IASC's 1989 *Framework for the Preparation and Presentation of Financial Statements*, which was adopted by the IASB in 2001 as its own framework guiding the development of IFRS. The Framework refers to four principal qualitative characteristics of financial statements, namely, understandability, relevance, reliability and comparability. Chapter 3 of the IASB's new Conceptual Framework refines the definition of desirable qualitative characteristics by defining two fundamental qualitative characteristics that financial statements should satisfy to meet user needs, namely, relevance and faithful representation. It further defines four 'enhancing' qualitative characteristics affecting the usefulness of information that is both relevant and faithfully represented: (i) comparability, (ii) verifiability, (iii) timeliness and (iv) understandability. We will discuss below the extent to which academic research can shed light on whether IFRS has enhanced the usefulness of financial statements in relation to these characteristics.

2.3. *The demand side of IAS/IFRS*

As noted above, international harmonisation of financial reporting was explicitly acknowledged as central to the original mandate of the IASC when it was formed in 1973 by collaborating national accounting standard-setters. However, the IASC was not an initiative triggered by the supply side of financial reporting regulation in isolation. On the demand side, international audit firms and multinational preparers were also active in promoting the IASC as a common financial reporting framework (Whittington 2005). There was also demand for international standards from countries lacking capacity or expertise to set their own local standards. In the 1990s, international security regulators formally recognised the advantages of international harmonisation of financial reporting for international capital markets, culminating in the endorsement of IAS by the International Organization of Securities Commissions (IOSCO).

The European Union is perhaps the most important international organisation to emerge as a source of demand for international harmonisation based on IAS. The principles underpinning this demand originate in the objectives of the former European Economic Community (EEC). The Treaty of Rome (1957) had defined the objectives of the EEC to include the free movement of capital, and this led to attempts to harmonise company law in member states using Directives.[3] These require national laws to comply with principles and criteria stated in the Directives. The initial approach taken by the European Commission to harmonise financial reporting across Europe was through the Fourth and Seventh Directives, issued in 1978 and 1983, respectively. Although the Commission's original intention had been to develop a comprehensive European accounting system based on the French 'plan comptable', the expansion of the EEC to include UK, Ireland and Denmark made consensus impossible (Roberts *et al.* 1996). Thus the Directives focused on providing broad guidelines on the content and form of accounts, audit requirements and accounting measurement principles, and allowed various options reflecting the diversity of practice across Europe at the time in order to achieve agreement across member states (Thorell and Whittington 1994).[4] The result was that the Directives were not effective in promoting significant convergence of financial reporting practices across Europe. Member states tended to retain their own national GAAP systems. For example, the UK retained its own Accounting Standards Committee (subsequently restructured as the Accounting Standards Board) to promulgate accounting standards to be used by UK companies. The European Commission seriously considered proposals to establish an EU accounting standard-setter to supersede national standard-setters (Haller 2002), but this proposal met with strong objections, partly because it was seen as a possible obstacle to wider international harmonisation.

Rather than seeking to develop EU-specific accounting standards, in 2002 the European Commission finally decided to adopt International Accounting Standards. This followed the emphasis placed in the Lisbon European Council Conclusions on creating a single financial market to contribute to EU growth and employment opportunities.[5] In turn, in the Financial Reporting Strategy outlined by the European Commission, deep, liquid securities markets were viewed as being beneficial to both issuers and investors (EC 2000, para. 1), although the economic mechanisms leading to benefits were not articulated. Comparability of financial statements through common reporting standards was considered by the Commission to be a priority in achieving the aim of the single financial market. Further, the reporting standards should be transparent, fully understood, properly audited and effectively enforced (EC 2000, para. 2). The Commission also defines qualities of financial reporting information that it regards as important, including relevance, timeliness, reliability and comparability (EC 2000, para. 8). Article 3.2 of Regulation 1606/2002, the EC instrument that mandates IAS/IFRS in the EU, reiterates that financial information needed for making economic decisions and assessing the stewardship of management should satisfy the criteria of understandability, relevance, reliability and comparability.

The Commission's perspective on financial reporting quality is clearly closely associated with the principles underlying the IASB agenda. As we have seen above, the IASB identifies three of the four characteristics as fundamental (relevance) or enhancing (timeliness and comparability) qualitative characteristics in its Conceptual Framework, although it now prefers to refer to the concept of faithful representation to capture ideas traditionally associated with reliability.

Given the objectives for financial statements that it had defined, it is no surprise that the Commission recommended adoption of IAS. This solution had the advantages of achieving harmonisation within Europe as part of a broader initiative towards international harmonisation, but in a way that did not involve adopting US GAAP. EU-listed companies were increasingly adopting US GAAP by the late 1990s on a voluntary basis, and while this provided the most credible alternative to IAS as a way of achieving international standardisation, political objections to further harmonisation of the regulatory framework for accounting in Europe on the basis of US GAAP were almost inevitable. However, in its justification for proposing adoption of IAS, the European Commission argued that IAS is preferable primarily because it is oriented towards the needs of international business and is not tailored to the US business environment, like US GAAP. It further argued that implementation of IAS would be less costly than US GAAP, essentially because of the voluminous rules-based content of US GAAP. By adopting IAS/IFRS for financial reporting by companies with securities listed on EU-regulated markets, the Commission considerably enhanced the international credibility of the IASB project.

While the original intention was to harmonise financial reporting for all companies, the EU decision to require only listed companies to report under IFRS explicitly recognises that such companies are most heavily dependent on general purpose financial reporting quality because they raise capital from public markets. In contrast, privately held companies can more easily inform investors via private communication channels, where the financing relationships that involve private equity investors and bank lenders can be structured as private contracts specifying information disclosure and performance obligations aimed at protecting such investors and creditors (Buijink *et al.* 2010). Therefore, the European Commission's ultimate objectives for the IFRS project appear to have been market outcomes. The justification (or at least some of the rhetoric) surrounding the proposals for harmonisation based on IFRS referred to economic growth and employment opportunities, and therefore it seems that there was a belief that accounting harmonisation would have favourable consequences for product and labour markets. However, it is evident that the main focus in the case for IFRS-based harmonisation has centred on potential beneficial capital market consequences.

While positive capital market consequences may have been hoped for at the time, the Commission's Strategy document of 2000 was remarkably imprecise about the potential benefits, restricting itself to quite vague predictions that harmonisation of financial reporting would assist the development of deep and liquid European capital markets that would benefit both issuers and investors, without specifying how these benefits would accrue (EC 2000, para. 1). It went on to argue that periodic financial reporting can '... ensure transparency, provide safeguards for investors and contribute to the overall stability of markets' (EC 2000, para. 3). Regulation 1606/2002 goes a little further, justifying itself as promoting the efficient and cost-effective functioning of the capital market, the protection of investors and the maintenance of confidence in the financial markets (EC 2000, para. 4). Regulation 1606/2002 also claims that it will reinforce the freedom of movement of capital in the internal market and helps to enable European companies to compete on an equal footing for financial resources available in European capital markets, as well as in world capital markets (EC 2000, paras. 4, 5).

It is interesting nevertheless that the official EC documents promoting the adoption of IAS/IFRS were quite careful to avoid claiming that IFRS introduction would, de facto, lead to a reduction in the cost of capital. However, European Commissioner McCreevy, responsible for the Internal Market and Services (2004–10), did venture to state in 2005:

> As users become more familiar and confident with IFRS, the *cost of capital* for companies using IFRS should fall. It should lead to *more efficient capital allocation* and *greater cross-border investment*, thereby *promoting growth and employment* in Europe. (McCreevy 2005, emphasis added)

The chairman of the IASB, Sir David Tweedie, is also quoted as saying in 2005:

> It [IFRS adoption] will save companies a huge amount of cash because it is going to reduce the cost of capital, and that makes it much easier to invest... It will reduce many of the risk pressures that stop a lot of investment.[6]

This belief is now explicitly captured in the IASB's emerging Conceptual Framework. In providing relevant and faithfully representative financial information to users, the IASB states that IFRS will '... help users to make decisions with more confidence. This results in more efficient functioning of capital markets and a lower cost of capital for the economy as a whole' (IASB 2010, QC37). This is a bold claim for many reasons, but especially because it neglects the issue of the quality of enforcement.

3. The implementation framework

3.1. *Endorsement of IFRS*

Regulation 1606/2002 not only mandates financial reporting under IFRS for European-listed firms, it also lays out the regulatory framework within which IFRS are to be endorsed and enforced. It does not unconditionally require the specific application of 'IAS/IFRS', but rather that 'international standards' will only be endorsed for adoption if they are judged by the European Commission to meet certain required criteria defining their technical quality. Regulation 1606/2002 requires the formation of a technical committee to provide advice prior to such endorsement, a role that is fulfilled by the European Financial Reporting Advisory Group (EFRAG). Its formal role is to provide advice to the Commission on all issues relating to the application of IFRS in the EU. EFRAG itself operates through a Technical Expert Group comprising 11 voting members, and various working groups examining different areas relevant to financial reporting policy debate. EFRAG has an important role in commenting on IASB policy papers and exposure drafts and EFRAG representatives also attend IASB Working Group meetings as observers.

The European Commission also consults with the member states of the EU prior to endorsing international standards. This political-level consultation occurs through the Accounting Regulatory Committee (ARC). EFRAG also participates in ARC meetings in the role of official adviser. The role of the ARC is to provide opinion on Commission proposals to adopt and endorse international standards and amendments to standards as they become available from the IASB. The area of Figure 1 above and to the left of the wavy line attempts to summarise diagrammatically the main bodies involved in the international standards endorsement process within the EU.

3.2. *Enforcement*

The area of Figure 1 to the right and below the wavy line seeks to summarise the enforcement side of the European IFRS experiment. The enforcement regime is an important, and often seriously neglected, aspect of the experiment. The need for an effective enforcement infrastructure is explicitly recognised as important in the Commission's Strategy document of 2000, which states that enforcement necessitates clear accounting standards, timely interpretations and implementation

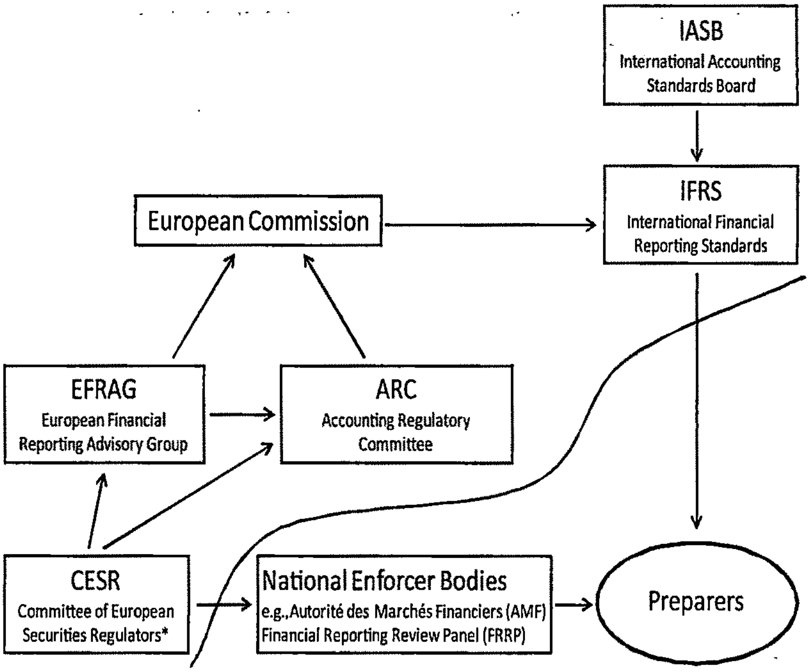
IASB
International Accounting Standards Board
IFRS
International Financial Reporting Standards
European Commission
EFRAG
European Financial Reporting Advisory Group
ARC
Accounting Regulatory Committee
CESR
Committee of European Securities Regulators*
National Enforcer Bodies
e.g., Autorité des Marchés Financiers (AMF)
Financial Reporting Review Panel (FRRP)
Preparers

Figure 1. The European implementation framework.
Note: *The Committee of European Securities Regulators (CESR) was replaced in 2011 by the European Securities and Markets Authority (ESMA).

guidance, statutory audit, monitoring by supervisors and effective sanctions. With regards to the supervisory role and effective sanctions, the Commission's stance has consistently been to delegate the enforcement process to domestic securities market regulators.

Regulation 1606/2002 charges the Committee of European Securities Regulators (CESR)[7] with the task of developing a common approach to enforcement (para. 16). The expectation was that CESR would establish a uniform system of monitoring (Whittington 2005). However, under Article 10 of the Treaty of Rome, the legal responsibility for enforcement rests with National Regulators working within the framework established by CESR. This framework is founded on two Standards defining the criteria thought necessary to ensure effective enforcement of compliance with IFRS. CESR's 'Standard No. 1 on Financial Information: Enforcement of Standards on Financial Information in Europe' establishes the minimum criteria that each member state should satisfy in order to meet the obligation to ensure effective enforcement mechanisms. For example, enforcement reviews should be carried out by independent and competent authorities or other bodies, and should be based on cases selected by a combination of risk-based assessment and a rotation or sampling approach. When material non-compliance or misstatements are uncovered, enforcers are required to take appropriate actions in a timely and consistent fashion. In practice, differences in national laws have led to a variety of definitions of 'appropriate actions'. For example, some member states such as Germany and Denmark follow a 'name and shame' approach aimed at creating incentives for firms to comply to avoid capital market consequences from adverse publicity, whereas other member states are apparently prevented from following such a strategy due to privacy and other laws. The consistency and speed of adoption of the principles in CESR Standard 1 by different EU member states appears to have been mixed (Brown and Tarca 2005, CESR 2007).

CESR's 'Standard No. 2 on Financial Information: Coordination of Enforcement Activities' establishes a database of enforcement cases and decisions, and a bi-monthly forum for dialogue between National Enforcers – the European Enforcers Coordination Sessions (EECS). CESR periodically publishes anonymised extracts from the database, but the database is neither comprehensive, because cases are added on a discretionary basis when they contain new insights, nor are the contents of the database publicly available. CESR itself reports that only 9 of the 29 member states fully comply with the principles in Standard No. 2 (CESR 2009b). It is an empirical matter whether or not different National Enforcers are equally effective in practice, even in the presence of a uniform enforcement framework. However, in light of the incomplete adoption of the enforcement framework established by CESR, it would be no great surprise to find evidence of lack of uniformity across Europe in compliance with IFRS. If this were to be the case, the predicted benefits associated with IFRS adoption might also be slow in being realised (Ball 2006).

4. The potential contribution of academic research

4.1. *The need for research*

Regulators do not have the luxury of being able to conduct controlled and realistic experiments that allow regulation to be honed and refined before it is implemented. It can be argued that regulators were influenced by the perceived relative success of Anglo-American capital markets in developing arguments for IFRS-based financial reporting harmonisation. However, the extension of the Anglo-American financial reporting model to Continental Europe was indeed experimental and is based on a number of important 'leaps of faith' that have been made by both the standard-setters (the IASC and the IASB) and by EU policymakers. In particular, the IASC and IASB have based their accounting standards on assumed user (investor) information needs plus other sources of information on what constitutes high quality information, such as feedback from preparers and users as well as some extant academic research. Similarly, the European Commission has assumed that the body of IAS/IFRS standards it adopted meets user decision needs. More importantly, the Commission has placed considerable trust in the ability of the primary system of devolved enforcement to deliver uniformly consistent high quality financial reporting. Generally, the key players in the regulatory framework have been forced to speculate on the regulatory system, and perhaps *ex post* will discover mistakes that can be corrected.

Academic research can inform and provide feedback into a dynamic regulatory process in several ways. First, theoretical analysis can help clarify the links between financial reporting information and capital market outcomes, and perhaps other economic and social outcomes. For example, by what mechanisms might the introduction of an IFRS-based financial reporting system reduce the cost of capital for firms? Second, empirical research based on the actual experience of the markets in using IFRS-based financial statements can assess the impact of the accounting regime change on the quality of financial reporting and on market outcomes. To the extent that outcomes vary by country or across firms, research can also provide insights into the important factors that influence outcomes. Such insights are potentially important for regulators in countries preparing to change their financial reporting regime, and for regulators in Europe and elsewhere considering ways of improving the implementation of IFRS.[8] In short, research is capable of providing insights that will be useful in assessing the successes, failures, costs and benefits of IFRS adoption. Such insights should be taken into account by policymakers interested in improving the information environment of financial markets in Europe and elsewhere.

4.2. *The potential scope of relevant empirical research*

Academic researchers have available a range of empirical research methodologies, including qualitative methods such as case studies and survey-based research directly documenting user or preparer opinions; and quantitative, econometric research based on archival databases containing information on market outcome variables, for example, market values, stock returns, liquidity proxies and financial statement information. In this paper we limit our focus to the second class of research, that is, archival analysis. This should not be interpreted as suggesting that qualitative research methods cannot contribute to the discussion. Clearly they can and several studies provide useful and important early insights into user and preparer opinions on the IFRS experiment.

As we discuss later, theory suggests that the relations between market outcomes, accounting outcomes and the financial reporting regime are potentially complex. We focus on research aimed at uncovering deeper insights into these relations, which necessitates multivariate econometric analysis of the data based on archival data. Examples of research themes that might be addressed using this general research methodology and which could contribute to an understanding of the successes or failures of the EU's IFRS experiment are set out below.

4.2.1. *Studies of compliance and enforcement*

Accounting regulation is not always effective. Compliance with the intended substance of regulations such as IFRS is an outcome that will vary both within and across countries depending on incentives and demand. Examples of possible research questions that focus on compliance and enforcement include how economic and political factors shape IFRS financial reporting rules; how IFRS compliance and enforcement vary across countries; which factors explain compliance and enforcement differences; why some firms voluntarily adopt IFRS before they are mandated; whether, and why, private firms voluntarily adopt IFRS; and whether, and why, audit quality differs across Europe.

4.2.2. *Comparative analysis of IFRS-related accounting quality changes*

Such research can aim to produce scientific assessment that quantifies and enhances understanding of the impact of the switch to IFRS on dimensions of accounting quality related to regulator, policy and user objectives for financial reporting. For example, research could address how accounting quality has changed after IFRS implementation; whether changes in levels of accounting quality are related to country-level legal, institutional or governance factors; and whether accounting quality differs between private and public firms that switch to IFRS, and if so why?

4.2.3. *Economic consequences of IFRS adoption*

Research on economic consequences recognises that financial reporting is not neutral. This, of course, is a central presumption of the EU policy initiative. Financial reporting has real economic consequences in various areas of business activity. Research questions on economic consequences could include asking whether the relevance of accounting numbers to the valuation decision is higher after IFRS adoption; whether IFRS adoption led to reductions in the cost of debt and equity capital; how investment analysts have accommodated IFRS in their decision-making processes; whether IFRS adoption has led to changes in corporate financing patterns; whether IFRS introduction has been associated with firms going private, delisting, changing domicile or taking other steps to avoid the higher transparency associated with IFRS; whether IFRS adoption is associated with changes in corporate decisions linked to controversial accounting issues such as financial risk hedging, defined benefit pension plans, asset leases and share-option-based compensation; whether the pattern of share ownership in listed firms has changed; whether IFRS implementation has affected business structures, for example, mergers and acquisitions, business segments, joint ventures; and how national governments have reconciled tax accounting with IFRS.

4.3. *Challenges facing empirical researchers*

In this section we consider some of the challenges facing academic researchers in contributing towards an evaluation of the experience of the European IFRS experiment since 2005.

4.3.1. *Measuring relevant outcomes*

The broad qualitative characteristics of financial statements that the standard-setter (IASB) and the policymaker (the European Commission) have defined for the IFRS project in Europe are outlined above. The first challenge for researchers is to map the broad objectives and financial reporting qualitative characteristics onto measurable outcomes that can be analysed by the research. Financial statements are not like food products: they do not come with analysis of how the product 'scores' according to various dimensions considered important by regulators. While we can see the fat, carbohydrate, protein, vitamin content and so on for the packaged food we purchase, users and researchers cannot look up at the back of annual reports how the financial statements score on things that are believed to be good for users, for example, relevance, faithful representation, comparability, verifiability, timeliness and understandability.

The job of investment analysts is to interpret the data contained in financial statements at the level of the individual firm, probably in the context of similar firms in the same industry or sector. Part of the job of analysts is to understand the context of individual firms' financial statements in order to draw inferences from the data. Effectively, analysts often try to understand what the ingredients label attached to the financial statements of individual firms would say, if it existed. In contrast, academic researchers attempt to establish general patterns of financial statement qualities. Extending the analogy, academic researchers are more interested in studying the average quality of the diet in a country or region, rather than what any specific individuals eat or drink.

Academic accounting research has a long history of empirically examining various aspects of the usefulness of accounting numbers. Research can broadly be classified in two categories: (i) research that examines properties of accounting numbers that arguably are associated with decision usefulness; and (ii) research that examines proxies for decision usefulness based on observable decision outcomes.

Research in category (i) has focused on various properties believed to be useful in different decision contexts, including earnings persistence, earnings predictability, earnings timeliness, asymmetric persistence and asymmetric timeliness (also referred to as timely loss recognition or conditional conservatism). These properties are predicted to be useful to decision-makers in different decision settings, but they are not necessarily mutually consistent with the IASB's conceptual emphasis on usefulness for resource allocation decisions. For example, asymmetric persistence and asymmetric timeliness are most closely associated with contracting or stewardship demands for useful, incentive-compatible performance measurement (see Basu 1997, Watts 2003) rather than with the information needs of those who rely on general purpose financial statements to inform their investment decisions. Other studies examine accounting numbers for evidence of managerial manipulation, for example, by considering accruals quality, the incidence of small gains vs. small losses as a proxy for earnings management, the incidence of accounting fraud and enforcement actions. These studies typically shed light as much on the incentives facing managers to exploit or abuse discretion in standards as on the properties of accounting standards per se.

Research in category (ii) has examined criteria related to various market outcomes, including the ability of the accounting number(s) to explain market values or stock returns (valuation relevance), the relations between accounting numbers and the estimated costs of equity or debt capital, as well as the links between directly observable market outcomes (such as bid–ask spreads) that in turn are conjectured to affect the efficiency of market resource allocation decisions.[9] Researchers also study properties of other user decision outcomes such as analyst forecasts and recommendations, institutional investment, investment by individuals and credit ratings. They have also studied decisions on which financial reporting outcomes are expected to depend and therefore where the accounting is expected to affect stakeholder outcomes. An example of studies in this latter category is the association of changes to defined benefits pension plans with changes in pension accounting recognition requirements.

The outcomes that researchers focus upon are, by definition, those outcomes that can be observed based on available data. Generally, they map only incompletely onto the users and their decision needs, and the desirable qualitative characteristics of financial statements identified by the IASB and the EU. For example, arguably it is impossible to measure representational faithfulness at the firm level, and therefore we cannot test questions such as whether the representational faithfulness of financial statements in a country is higher after IFRS adoption than before. Faced with this dilemma, the research might have to choose to focus on a proxy outcome variable that is associated with lack of representational faithfulness. For example, it may be conjectured that changes in the incidence of accounting fraud are informative about changes in representational faithfulness, assuming that other determinants of accounting fraud and its detection are held constant or controlled for adequately.

4.3.2. *The identification problem*

Accounting researchers face certain problems in common with policymakers. They cannot conduct controlled experiments where the only factor changed is the financial reporting regime.[10] Rather, researchers have available blocks of data for countries that have adopted IFRS at some point in the database's memory (the 'treatment' sample), and for other countries that have never adopted IFRS but have reported under a non-IFRS regime such as US GAAP (the 'benchmark' sample). Capital market outcomes such as market liquidity, turnover, ownership, estimated cost of equity, cost of debt, security issuance, etc., can be observed for both treatment and benchmark samples in both the pre-IFRS adoption period and the post-IFRS adoption period. The challenge for empirical researchers is to attribute any observable changes in market outcomes for the treatment sample to the introduction of IFRS. Figure 2 illustrates the experimental set-up.

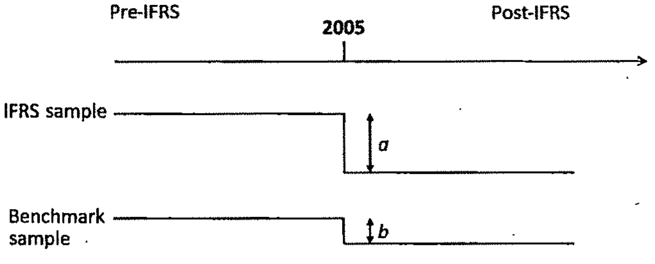

Figure 2. Research design: difference-in-differences. Note: The diagram illustrates the measured effect of accounting regime change on an outcome variable, where, by way of example, *a* represents the change for the IFRS sample and *b* the change for a benchmark sample that comprises firms operating under a financial reporting regime that has *not* changed.

A major problem facing the researcher is that the experiment does not hold other potentially relevant factors constant. This simply demonstrating that there are differences in market outcomes for the treatment sample between the pre- and post-IFRS periods does not provide convincing evidence on the presence or absence of an IFRS effect. Since other factors determining market outcomes can vary over time, any result is possible. In terms of changes in market outcomes, it could appear that IFRS adoption is associated with positive, zero or negative market outcome effects on average. For example, studies of market liquidity will almost certainly find that common measures of stock-level liquidity (e.g. bid–ask spreads or trading volume) are on average lower in the post-IFRS periods spanning the 2007–2009 liquidity crisis and credit crunch periods than in the comparatively benign pre-IFRS periods spanning 2003–2004. But this would not mean that IFRS *caused* an adverse change in liquidity. The problem is that by examining only the treatment sample we do not know what would have happened in the IFRS-adopting region had firms not adopted IFRS. When IFRS are mandated, all firms must adopt IFRS and we can never know the capital market outcomes for firms in the same time period in the same countries had IFRS not been implemented. Similar concerns exist even if changes in market outcomes are observed that are consistent with IFRS improving the information environment. Unless we can rule out changes in other important determinants of the market outcome, it is difficult to convincingly attribute the observed effect to the introduction of IFRS-based reporting.

On the other hand, when IFRS adoption is voluntary there is a different problem – it is likely that firms that voluntarily adopt IFRS are *different* in some important ways from firms that do not voluntarily adopt IFRS. If the characteristics on which voluntarily adopting firms differ are correlated with market outcomes in some way, then again incorrect inferences about the effects of IFRS might be reached because of a potential selection bias problem. For example, firms that cross-list have often adopted IFRS (or US GAAP) and the two events frequently coincide. If liquidity changes occur around these two coincident events, it is difficult to establish whether the change in liquidity is due to cross-listing or to the change in financial reporting regime.

These problems are examples of what is known in econometrics as the identification problem. How do we know that a statistical outcome consistent with theoretical predictions is indeed driven by the causal factor under investigation (i.e. the accounting regime) and not by another un-modelled causal factor (e.g. general changes in market liquidity caused by economic crisis)? How can the design of the researcher's experiment test for an IFRS-related effect? Figure 2 illustrates the problem.

Suppose that an outcome variable of interest is monitored over time for a panel of firms in IFRS-adopting countries (the IFRS sample). For example, the outcome variable might be the estimated cost of equity capital. If IFRS adoption on average has a beneficial impact then we would see a reduction in the average estimated cost of capital coinciding with, or possibly following, IFRS adoption. The researcher could measure the average value of the cost of equity before and after IFRS adoption and test whether the difference between the mean cost of equity in the two sub-periods, the value a in Figure 2, is significantly different from zero. This test could be conducted within a statistical regression framework to allow the researcher to control for changes in firm-level determinants of the cost of equity that occur over time. In this case the coefficient on an indicator variable capturing whether financial reporting is under IFRS or not reflects changes in the conditional mean of the cost of equity.

Considering how outcome variables change over time for a sample of IFRS firms can be informative as long as the researcher can be confident that changes in other determinants of the outcome variable are taken into account. To some extent, firm-level determinants of outcome variables are controlled for if they do not change – the presence of the firm in the pre-IFRS period means that the firm acts as its own control. But in practice researchers are dealing with outcomes that are the result of complex interactions between firm characteristics and country institutional features, some of which cannot even be observed, or perhaps are not even fully understood. Therefore, the likelihood is that there are changes in unmodelled factors that could account for at least some of the observed changes in outcomes, creating doubt that observed outcome changes can safely be attributed to the introduction of IFRS. If we want to rebut the argument that an observed change could have happened anyway, independent of whether IFRS were introduced, we need to find a more convincing research design that reduces the possibility that other factors are responsible for changes in outcomes.[11]

The most common research design employed to address this type of identification problem is to exploit information in a benchmark sample, for example, firms that are known not to have changed their financial reporting regime. Thus, we can model the specific effect of accounting regime change on the market outcome in the treatment sample, after controlling for any common effects in the market outcome affecting both treatment and benchmark samples. In terms of Figure 2, this is equivalent to testing whether the change for the IFRS sample, *a*, is statistically greater than the change for the benchmark sample, *b*. This approach is often referred to as a difference-in-differences research design. Again, the test can be conducted in a regression framework where other determinants are controlled for as right-hand side variables.

The difference-in-differences design does not eliminate entirely the uncertainty associated with attributing an observed effect in the market outcome to the accounting regime change. To the extent that other causal factors may change in the treatment sample countries and not in the benchmark sample countries, or vice versa, it is possible in either case that market outcomes could be incorrectly attributed to the financial reporting change. As pointed out by Leuz and Wysocki (2009), many institutional changes occurred in securities markets around the period of IFRS introduction in Europe, and some could have affected the market outcomes that researchers study.[12] For example, the Markets in Financial Instruments Directive was introduced in 2007. Its objective is to enhance market liquidity and the quality of trade execution in European securities markets and therefore could represent an alternative institutional factor that triggers predicted market outcomes. The challenge to researchers is therefore to find ways of more directly associating market outcomes with financial reporting, for example, by developing evidence showing that market outcomes are stronger for benchmark firms where the financial reporting regime change has had most impact, or where general purpose financial reports are more important to market participants.

4.3.3. *Systematic effects or conditional effects?*

Regulators have expressed the view that harmonisation of financial reporting based on IFRS will lead to a reduction of the cost of capital, and hence to wider positive economic effects. If interpreted literally as predicting that the cost of capital will fall for all firms in a country or region, such claims are simplistic at best. As discussed in more detail below, there are good reasons to predict that benefits will only follow if implementation and enforcement are high quality. Therefore, in analysing the data for evidence of IFRS effects, researchers need to find valid ways of adequately characterising the financial reporting environments within which firms operate. However, this is potentially a complex task.

Figure 3 illustrates one way of thinking about the dependence of financial reporting quality on legal, economic and social aspects of the financial reporting environment. It reflects the view that financial reporting outcomes depend not only on the financial reporting standards in place, but also on the incentives and constraints facing preparers to comply with those standards, and the effectiveness of the external enforcement framework overseeing financial reporting outcomes. The incentives for preparers to produce high quality financial statements within the framework provided by the standard-setting regime, and the constraints that are placed on them, will

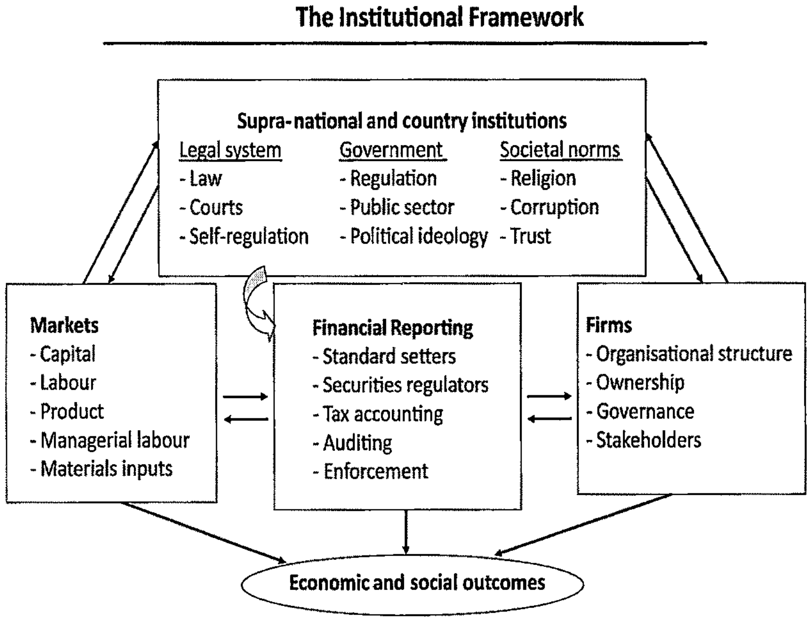

Figure 3. The institutional context of financial reporting.

generally depend on both firm-level corporate governance arrangements and on the country-level enforcement framework to which a firm is subject. The balance between these firm-level and country-level influences is likely to vary. Where the country-level enforcement framework is weak, firm-level governance mechanisms can be expected to have potentially large effects on preparers' incentives to comply. In contrast, where the country-level enforcement framework is strong, firm-level governance mechanisms can be expected to be less important and intra-country variation in compliance should be lower. In this context, Wysocki (2011) analyses in much greater detail the role of the regulatory framework in shaping financial reporting practice.

Researchers face challenges in modelling compliance incentives. The first difficulty is that high quality firm-level governance data is not available for comprehensive samples of international firms. To date, most research has focused on the role of country-level incentives originating in enforcement frameworks. Here again there are constraints to the availability of data. We do not have measures of the effectiveness of enforcement mechanisms in different countries. Conceptually we would want to know the likelihood that a specific type of misstatement or compliance violation would be identified and a correction required by each national enforcer. However, the data available to researchers make it impossible to evaluate the quality of the work done by enforcement agencies in different countries. Even the better developed enforcement infrastructures such the UK's Financial Reporting Review Panel (FRRP) are quite opaque, relative to the US Securities and Exchange Commission, in the information they provide about enforcement activities and specific actions brought against companies. Prior to 2007, the FRRP published press notices and summarised in its annual report any rulings indicating that a review had revealed defective financial statements or disclosures. However, in recent years the practice of 'naming and shaming' through public disclosure of adverse rulings has been revised. Now only in extreme cases – where companies are required to restate their accounts because they are not compliant with the legal requirements of the Companies Act – are press notices released.[13]

In the absence of clear measures of the quality of national financial reporting enforcement frameworks, financial statement users and researchers face similar problems. Should they assume that enforcement quality is uniform, or should they assume that enforcement differences predicted from observable proxies are believed to contain information about cross-country variation in the quality of the enforcement effort? Researchers have so far elected to follow the latter approach to model cross-country enforcement differences. To the extent that market outcomes appear to depend on estimated enforcement framework differences, it also appears that the markets do not assume that enforcement is uniform. Researchers have employed various proxies for the quality of the information environment, investor protection and the legal system as proxies for enforcement quality. For example, Daske *et al.* (2008) allow the impact of mandatory IFRS to depend on *Rule of Law* as measured by Kaufmann *et al.* (2008) and the *Aggregate Earnings Management* index of Leuz *et al.* (2003). Florou and Pope (2010) also employ the *Control of Corruption* index as defined by Kaufmann *et al.* (2008) as a further proxy variable for the quality of the compliance framework. Finally, Dargenidou *et al.* (2007) emphasise the joint modelling of interactions between such proxies in a European setting, showing how, in the market's pricing of earnings expectations, stricter corporate governance practices at the firm level may compensate for penalties attributable to weaknesses in the investor protection provisions in local law. Similar interactions modelling is reported in Raonic *et al.* (2004), where greater regulatory enforcement at the country level is seen to substitute for lower equity market exposure by European firms, in this case with respect to improvements in accounting quality. With regard to IFRS adoption, to the extent that such proxies are unable to fully capture the real differences in enforcement across countries, studies will underestimate the effects that IFRS adoption can have on outcome variables in a supportive institutional environment with strong enforcement.

4.3.4. *Financial reporting differences and the potential impact of regime change*

When conducting analysis of the impact of financial reporting regime change, researchers are often interested in establishing whether changes in accounting or market outcomes are more likely to occur where the differences between local GAAP and IFRS are large. Intuitively, if the local GAAP that IFRS replace are close to IFRS then we might not expect major IFRS-related effects on outcome variables of interest.

The currently available research on GAAP differences is restricted to two main papers, namely, Bae *et al.* (2008) and Ding *et al.* (2007), both based on the *PWC Survey*. Bae *et al.* (2008) document for each country whether a prescribed treatment is absent from local GAAP (*Absence*) and whether, when it exists, the local GAAP treatment differs from IAS/IFRS (*Difference*). Their overall measure of GAAP difference is a composite of *Absence* and *Difference* scores for each country obtained by pair-wise comparisons with all other countries in the sample.[14] In contrast, although the Ding *et al.* (2007) *Divergence* measure is developed using the same data source as Bae *et al.* (2008), it is based solely on differences in rules between domestic GAAP and IFRS, assessed across a much larger number of accounting items. Examples of different country rankings in the two studies include Ireland and the UK, which score 11.7 (the highest) and 11.4 (the second highest), respectively, under the *Divergence* measure; yet, they receive a score of −3.3 and −3.4, respectively (both among the lowest), under the Bae *et al.* (2008) *Difference* measure. Part of the dilemma here is how to weight differences over a large set of accounting treatments when some countries do not have local standards in respect of many accounting items (i.e. *Absence* is high) while other countries such as the UK do have broad coverage in local standards (i.e. *Absence* is low) but there are numerous, but often small, differences between these local standards and IFRS. Overall, the rank correlation between the Bae *et al.* (2008) *Difference* measure and the Ding *et al.* (2007) *Divergence* measure is 0.38, indicating a very different classification of countries under the two measures. A further challenge to researchers is therefore to develop more comprehensive and robust measures of the degree of convergence between national GAAP and IFRS.

4.3.5. *Evaluating the quality of compliance*

The degree of compliance with IFRS depends on preparers' incentives, which in part depend on the quality of enforcement. However, since IFRS are principles-based standards, whether specific accounting treatments are appropriate may depend on detailed circumstances surrounding transactions assumptions and judgements made by preparers, many of which are often not publicly available. Thus auditors and national enforcers, having access to private information, might reach different conclusions on appropriate accounting treatments in cases which appear similar based on public information. This lack of complete information limits the ability of researchers to conduct conclusive assessment of compliance quality. Nevertheless, researchers are able to document abnormal accounting policy choices that are apparently inconsistent with IFRS. They are also able to identify non-compliance with disclosure requirements where there is clear evidence of activity that would be expected to generate disclosure under IFRS.[15]

5. What does INTACCT research tell us about the European IFRS experiment?

This section introduces some of the main insights contributed by mainly empirical research emerging from the INTACCT research network. Our intention here is to 'set the scene', based on recent research from the INTACCT research programme. Brown (2011), Sunder (2011) and Wysocki (2011) expand on several of the research themes we mention here, and broaden the discussion to the wider academic research literature. We concentrate on selected INTACCT empirical research relating to the three main research themes described in Section 4.2 above.[16]

5.1. *Studies of compliance and enforcement*

Early evidence on the quality of first-time implementation and degree of compliance with IFRS in Europe in the period immediately after 2005 presents a fairly optimistic picture. For example, ICAEW (2007) documents a high level of self-reported compliance with IFRS. Only two companies in a sample of 200 companies disclosed lack of full compliance with IFRS, with clean audit reports supporting the claim of compliance by the other 198 companies. CESR (2007), based on the views of European enforcer bodies, also presents a fairly optimistic evaluation of the first year IFRS implementation effort, although it does identify several technical accounting areas where significant implementation problems were encountered, as well as the need to further develop enforcement mechanisms in several countries. CESR has also identified some causes for concern about the degree of compliance with certain aspects of IFRS, especially in relation to financial instruments accounting and disclosure by financial institutions (CESR 2009a), and has reported a significant increase in enforcement actions of various types across Europe, with approximately 900 actions being taken in 2009 (CESR 2010). Unfortunately, CESR did not identify the distribution of such actions across countries, and therefore we have no way of knowing how uniform regulatory scrutiny really is across Europe. Overall, the evidence to date suggests that IFRS compliance is far from perfect.

Against this background of compliance and enforcement review by regulators, INTACCT researchers have examined a number of specific areas of IFRS enforcement, especially related to first-time adoption and the problematic cases of fair value accounting, accounting for financial instruments and accounting by financial institutions. Goh *et al.* (2010) document considerable variation in compliance with disclosure requirements on executive stock options under IFRS 2 in a sample of French firms. In particular, they focus on required disclosures of assumptions made in model-based option valuations. They find that the quality of disclosures increases with analyst following, the importance of stock options in CEO compensation, US and UK institutional ownership, board size and the use of English in financial statements, and decreases with CEO stock ownership. The overall level of disclosure quality is associated with factors relating to the benefits of disclosure, and decreases when the benefits to public disclosure are likely to be lower, for example, when large ownership stakes are held by the CEO and family blocks. The evidence suggests that disclosure compliance reflects managerial incentives, and that compliance in this politically sensitive area cannot be taken for granted.

Ernstberger *et al.* (2010) examine the announcements of adverse findings of accounting errors announced by the German regulator, Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin), following reviews carried out by the responsible body Deutsche Prüfstelle für Rechnungslegung (DPR). Their sample comprises German firms over the period 2005–2009. Ernstberger *et al.* (2010) identify 165 reported IFRS recognition errors for 137 firms, and 261 IFRS disclosure errors for 186 firms over the five-year period, suggesting that the German enforcement system is effective in identifying compliance failures, which are material in number. Firms are more likely to be censured if they are small, have higher leverage, more segments, higher systematic risk and weaker corporate governance. This is consistent with non-compliance being related to plausible risk factors and/or the methodology used to select firms for review being risk-based.

Bischof *et al.* (2010) analyse a comprehensive global sample of 302 banks reporting under IFRS. They focus on the IASB's October 2008 amendment to IAS 39 granting the option to relax fair value accounting by reclassifying financial assets into categories that require measurement at amortised cost. Over one-third of their sample chose to reclassify assets. In doing so, they often avoided substantial write-downs of financial assets, especially illiquid assets that had been particularly affected in the financial crisis. In doing so, these banks increased reported profits by an estimated aggregate of €22.7 billion. The results show that banks are more likely to reclassify impaired assets when capital ratios are close to the locally required regulatory capital adequacy ratios and when the country-specific regulatory discount on the inclusion of unrealised fair value gains in regulatory capital is small. In other words, firms at risk of supervisory intervention have been more likely to take advantage of the reclassification option. As a measure of the disclosure quality associated with the asset reclassifications, Bischof *et al.* (2010) assess accompanying disclosures against the quantitative disclosure requirements subsequently introduced in IFRS 7 in an effort to mitigate the informational effects of reclassification. Only 42 of the 124 reclassifying banks have complied fully with the IFRS 7 disclosure requirements, indicating a general tendency for the reclassifications to be carried out with low transparency.

These studies document uneven compliance with IFRS in Europe, and further afield. Moreover, they confirm theoretical predictions that non-compliance is associated with the economic incentives of preparers. Further papers discussed in the next two research categories examining accounting and economic outcomes also provide indirect evidence on compliance and enforcement being uneven and associated with economic incentives.

5.2. *Comparative analysis of IFRS-related accounting quality changes*

If IFRS adoption is to have the economic consequences that policymakers desire, then a necessary condition is that the information available to financial statement users should improve. This may occur as a result of improved disclosure, or if some of the properties of accounting numbers relevant to financial statement users change positively as a result of the accounting regime change.

Accounting number properties will change if measurement and recognition rules under IFRS lead to improvements relative to local GAAP, and if IFRS are effectively enforced.[17]

INTACCT researchers have examined the effects of IFRS introduction on a wide range of accounting attributes for different samples. Table 1 summarises much of this research. Individual papers have considered the impact of IFRS on disclosure quality, valuation and other accounting ratios, accounting choices made within the framework of IFRS, and various properties associated with accounting quality, including earnings management proxies, conditional conservatism and the timeliness of impairment write-offs, persistence, asymmetric persistence, earnings forecast accuracy and dispersion, timeliness and comparability.

Table 1. INTACCT research – accounting properties.

Paper	Sample	Voluntary/ mandatory	Accounting property	IFRS effect(s)	Contingent factors
Multi-country studies					
Beuselinck *et al.* (2008)	EU	V + M	Accruals–cashflow association Comparability	?	Strength of enforcement Business cycles Industry type
Beuselinck *et al.* (2010a)	EU	M	Earnings forecast precision	+	Analyst characteristics
Bischof *et al.* (2010)	Global	M	Accounting choice		Financial crisis
Capkun *et al.* (2010)	EU	M	Earnings management	−	Legal institutions Pre-transition earnings management
Ding *et al.* (2007)	Global		IAS–GAAP differences		
Ding *et al.* (2009)	Global	V + M	IAS–GAAP differences		
Garcia-Osma and Pope (2010)	EU	M	Earnings management Asymmetric persistence Gain–loss ratio		Enforcement
Gebhardt and Novotny-Farkas (2011)	EU banks	M	Income smoothing Timeliness	− −	Ownership structure Bank supervision
Jeanjean and Stolowy (2008)	France, UK, Australia	M	Meet or beat earnings management	No reduction in earnings management	
Verriest *et al.* (2010)	EU	M	First-time adoption IAS 39 adoption	+	Corporate governance
Single-country studies					
Ali *et al.* (2010)	Bulgarian banks	M	Earnings management	+	Bank size Ownership structure Bank supervision Audit Bank management
Atanassova (2008)	Bulgarian banks	M	Disclosure quality	+	
Cazavan-Jeny and Jeanjean (2009)	France	M	Key ratios	Limited	First-time adoption choices under IFRS1
Choi *et al.* (2010)	UK	M	Forecast accuracy Forecast dispersion	+ +	Firm size

5.2.1. *Disclosure*

In relation to IFRS-related disclosure changes, Atanassova (2008) reports that financial disclosure quality of Bulgarian banks improves significantly after the switch to IFRS. For a broader EU sample, Verriest *et al.* (2010) use hand-collected disclosure data to investigate the quality of IFRS adoption disclosures relating to the prior year reconciliations from local GAAP to IFRS, and more general IFRS disclosure and recognition choices. With regards to first-time adoption, they find that disclosures are of higher quality when firms have strong corporate governance. They also find that while disclosure levels improve generally on average with the introduction of IFRS, firms with higher quality governance make more extensive disclosures on the financial statement effects of specific IFRS accounting standards. The results of Verriest *et al.* (2010) show that, even after controlling for country-level institutional factors, the firm-level corporate governance context can be an important determinant of financial disclosure quality.

5.2.2. *Earnings timeliness and timely loss recognition*

A further accounting attribute underpinned by conservatism is the timeliness with which losses are reported. Although the IASB does not recognise accounting conservatism as a desirable accounting property, there is nevertheless an extensive accounting literature suggesting that attributes associated with conservative recognition rules are deemed useful by at least some groups of users, for example, creditors. Flexibility within IFRS does exist and provides preparers with timing options, for example, with regards to the implementation of fair value accounting under IAS 39. Verriest *et al.* (2010), discussed above, also show that firms with stronger corporate governance make more conservative adoption timing choices with respect to the implementation of IAS 39.

Asymmetric, more timely, loss recognition implies that accounting accruals recognise bad news faster than good news and that the negative correlation between accruals and cash flow depends on the sign of cash flows (Ball and Shivakumar 2005, 2006). Under the alternative hypothesis, the accruals–cash flow relation is linear and accruals serve to smooth reported income. Beuselinck *et al.* (2008) show that while the negative relation between accruals and cash flows converged over a 15-year period, nevertheless it still depends on the stage of the business cycle and reporting incentives related to capital market pressure, leverage and labour intensity. Based on the first year of IFRS implementation they show that the switch to IFRS did not enhance the comparability of accounting earnings and accruals. Incentives still appear important in the first year of mandated IFRS reporting in Europe.

Gebhardt and Novotny-Farkas (2011) also investigate aspects of income smoothing and earnings timeliness, but in the specific context of loan-loss provisions recognised by EU banks.[18] If changes in loan-loss provisions are recognised in a timely fashion, they will predict future recognised loan impairments. IFRS restrict loan-loss provisions to reflect only incurred losses. The authors report evidence confirming that IFRS restrict the ability of banks to smooth income and to recognise losses in a timely fashion. However, the effects of IFRS in this regard are weaker in countries with widely dispersed share ownership and strict banking supervision, providing more support for the notion that the institutional context of financial reporting is at least as important as the accounting standards themselves.

5.2.3. *Earnings management*

Income smoothing based on private information held by management is one motivation for earnings management. It aims at providing ‘permanent’ earnings numbers that are more representative as a basis for valuation and dividend distribution decisions. However, earnings management might also be attempted for less benign reasons such as influencing outcomes in debt contracts, management compensation, wage bargaining and government regulation. Earnings management might also be attempted to meet market expectations and influence securities prices. Earnings management aimed at obscuring the true economic reality of a firm is often termed opportunistic, and as such is a negative indicator of accounting quality. Several INTACCT research papers have assessed the impact of IFRS adoption on estimated earnings management.

Earnings management requires accounting choices, which might arise as a result of the flexibility provided within IFRS, or they might be due to assumptions and judgements made in accounting estimates that are inconsistent with underlying recognition and measurement principles. As mentioned above, Bischof *et al.* (2010) study one example of accounting choice in IFRS that effectively obscures the economic reality, with respect to the reclassification of impaired financial assets under amended IAS 39. They show highly economically significant earnings management by European banks during the financial crisis.

Capkun *et al.* (2010) examine the financial statement effects of IFRS from a broader accruals-based earnings management perspective using a sample of 1772 EU firms over the mandatory IFRS transition period 2004–2005. Capkun *et al.* (2010) find that return on assets (ROA) is significantly higher under IFRS. They find evidence that the greatest increase in ROA is for firms with lower levels of ROA under local GAAP, and attribute this result to earnings management during the transition that is present in all countries, but is highest in countries where legal institutions are weak and pre-transition earnings management is high. These results are consistent with firms using the IFRS transition period to increase their reported earnings and ROA.

Garcia-Osma and Pope (2010) also examine earnings management behaviour for a large sample of 3570 non-financial firms in 20 countries that mandated IFRS in 2005. They examine as-reported financial statement data to assess changes in four country-level earnings management proxies based on Leuz *et al.* (2003). The earnings management proxies include the volatility of earnings relative to the volatility of cash flow, the correlation between changes in accruals and changes in cash flow, the absolute value of accruals relative to the absolute value of cash flow and the ratio of small gains-to-small losses. Country-level analysis reveals that relative levels of earnings management, based on each of the four earnings management proxies and on the aggregate earnings opacity score, are highly persistent between the pre- and post-IFRS periods. Countries where earnings management is high (low) pre-IFRS tend to have relatively high (low) levels of earnings management post-IFRS. Only in the case of income smoothing is there any evidence of reduced earnings management in the post-IFRS period, consistent with IFRS reducing income smoothing opportunities for firms.

An important aspect of the switch to IFRS is that it involves moving from one set of measurement and recognition standards to another. Effectively, at the beginning of the transition year, the balance sheet must be restated under IFRS. However, despite the emphasis placed by the IASB on the principle of faithful representation, IFRS 1 – *First-time Adoption of IFRS* – provides considerable discretion to management to manipulate the opening IFRS balance sheet. In particular, as transition management has the ability to eliminate balance sheet bloat and derecognise and impair various asset classes so as to increase the likelihood of being able to report earnings increases and manage earnings upwards in the early years after IFRS adoption. Garcia-Osma and Pope (2010) develop an empirical proxy for abnormal balance sheet adjustments on transition and show for a sample of European companies that subsequent earnings management (as well as asymmetric persistence and the value relevance of net income and book value) is significantly associated with abnormal transition adjustments. They also find that earnings management depends on country-level incentives related to the strength of enforcement and legal institutions. Cazavan-Jeny and Jeanjean (2009) develop complementary evidence to Garcia-Osma and Pope (2010) for a sample of French firms. They show that key accounting ratios are relatively stable across the IFRS transition. This stability is apparently due to firms' accounting choices and, in particular, the use of IFRS 1 options to offset the effects of mandatory balance sheet adjustments. Taken together, the studies of Garcia-Osma and Pope (2010) and Cazavan-Jeny and Jeanjean (2009) emphasise the importance of the transition year accounting choices in determining post-IFRS accounting quality. They point to an inherent weakness in IFRS 1 compromising the principle of faithful representation, especially in the context of implementation in regimes where enforcement quality is potentially low.

5.2.4. *Predictability*

Another accounting attribute often considered by researchers as an indicator of usefulness to financial statement users is the degree of predictability of accounting earnings. The accounting system can contribute to forecast ability through measurement and recognition rules that improve predictability, and by enhancing disclosure of forward looking information that helps in the prediction of future earnings. Thus, researchers often examine the accuracy of analysts' earnings forecasts and the dispersion of analysts' forecasts as indicators of predictability. Choi *et al.* (2010) consider the accuracy and dispersion of analysts' earnings forecasts for a sample of UK firms for periods before and after the introduction of IFRS. They find that forecast accuracy increases and forecast dispersion across analysts reduces, suggesting that the switch to IFRS could have contributed to earnings being more easily forecasted. Beuselinck *et al.* (2010a) employ a novel research design to estimate the properties of the information contained in analysts' earnings forecasts for mandatory IFRS adopters in Europe for the period 2003–2007. They estimate the public and private information components of analyst forecasts. Their results suggest that both public and private information increases post-IFRS adoption. Further analysis suggests that analysts who follow firms in more than one European country experience the largest post-IFRS improvement in private information precision. This suggests that cross-border accounting comparability increases as a result of IFRS adoption. Similarly, Dargenidou and McLeay (2010) document a significant reduction in the statistical effect of country differences when pricing earnings expectations, again suggesting accounting comparability increases following the mandatory implementation of IFRS.

5.2.5. *Summary*

Overall, although there appears to have been an increase in comparability in some specific circumstances, evidence suggests that IFRS adoption does not lead to automatic improvements in accounting quality, when this is assessed using common measures of financial reporting quality from the accounting research literature. The overwhelming pattern that emerges in the results is that accounting quality in both the pre- and the post-IFRS periods is context-specific. Important determinants of accounting quality are the incentives and constraints facing preparers. In turn, incentives depend on both firm-level governance arrangements and country-level enforcement quality and incentives. IFRS appear not to have been the panacea some policymakers might have hoped for. In fact, it is possible that the flexibility offered by IFRS, especially in first-time implementation choices, might have reduced transparency in some firms. In such circumstances, it would be surprising to find uniform systematic beneficial economic consequences resulting from the IFRS experiment.

5.3. *Economic consequences of IFRS adoption*

5.3.1. Equity market evidence

The identification of potential economic consequences arising from IFRS adoption has been the subject of considerable academic research effort in the last five years. A significant proportion of this research is associated with the INTACCT programme, and is summarised in Table 2. The seminal analysis that has guided the research design in much research that has followed is Daske *et al.* (2008). They examine a large global sample comprising both voluntary and mandatory IFRS adopters as well as benchmark firms that use local GAAP (often US firms using US GAAP) throughout the period. Their evidence reveals that market liquidity (measured in terms of bid–ask spreads and trading volume) and valuation ratios have improved as a result of mandatory IFRS adoption. Country–month analysis helps alleviate concerns about the identification problem, confirming that monthly changes in the rate of adoption of IFRS within a country are associated with changes in market outcomes. Results relating to the effects of IFRS on estimated (reverse-engineered) cost of equity are more mixed than for the other market outcomes considered and appear to be particularly sensitive to the definition of the benchmark sample. This is a research design issue that several other studies seek to consider.

An important aspect of the Daske *et al.* (2008) paper is their results conditioning market outcomes on country-level institutions. They report that the estimated effects of IFRS on market outcomes are significant only for countries where reporting incentives and the strength of enforcement are classified as being high. There is no evidence of IFRS-related benefits where institutions underpinning enforcement and preparer incentives are weak. This result is consistent with enforcement in countries with relatively weak institutions being ineffective, resulting in loss of confidence in financial reporting in these countries. However, because actual enforcement quality is unobservable, the result is also possible that, while enforcement quality in such countries is in fact high, the market consensus is in disagreement. In other words, market expectations about enforcement quality in weak institution countries might be wrong. But even if expectations are incorrect, they do matter for market outcomes.

Building on the approach of Daske *et al.* (2008), other papers have examined market outcomes associated with IFRS adoption for different outcomes and different samples. Daske *et al.* (2009) consider the effects of voluntary IFRS adoption prior to mandated adoption on liquidity and estimated cost of equity. They again find evidence consistent with benefits being realised only when reporting incentives are high. Thus, they distinguish between 'serious' adopters, who expect to gain from the greater financial transparency offered by IFRS, and 'label' adopters who are conjectured to not apply IFRS rigorously because they have little or nothing to gain.

If IFRS financial statements are more relevant to decision-makers than local GAAP financial statements then this should be reflected in directly observable outcomes of user decisions. Florou and Pope (2010) examine outcomes from investment decisions taken by institutional investors. Institutional investors are usually characterised as relatively sophisticated and informed. If IFRS adoption has an effect on institutional investor decisions there should be a footprint left in changes in the investment holdings of these investors. They test this conjecture for a large global sample of firms where institutional holdings are captured in the Thomson Reuters ownership database. After controlling for other determinants of institutional ownership, they find changes in the percentage ownership of institutional investors and changes in the number of investors owning stock in a company are positive following IFRS adoption. Florou and Pope (2010) mitigate concerns that the driver of ownership changes might be unrelated to financial reporting in two ways. First, they show that the documented ownership changes are largely confined to active investors and those whose investment styles are described as value and growth investment. Such investors are more likely to rely on financial statements in their decision

Table 2. INTACCT research – market outcomes and other economic consequences.

Paper	Sample	Voluntary/ mandatory	Outcome variable(s)	IFRS effect(s)	Contingent factors
Multi-country studies					
Beuselinck *et al.* (2010b)	EU	M	Stock price informativeness	+	Distance IFRS to local GAAP Analyst activity Institutional investor ownership
Bischof *et al.* (2010)	Global	M	Abnormal returns Information asymmetry	+/ −	Financial crisis
Bruggemann *et al.* (2010)	Global	V, M	Individual investor cross-border trading	+	Reporting incentives Strength of enforcement
Botma and Joos (2010)	EU	M	Expropriation risk	+	Family ownership
Charitou *et al.* (2010)	EU	M	Default risk	+	Strength of enforcement
Dargenidou and McLeay (2010)	EU	M	Earnings forecasts	+	Analyst activity Early IFRS adoption
Daske *et al.* (2008)	Global	V + M	Liquidity Valuation Cost of equity	+ + ?	Reporting incentives Strength of enforcement
Daske *et al.* (2009)	Global	V	Liquidity Cost of equity	+ +	Reporting incentives Serious vs. label adopters
Florou and Kosi (2010)	Global	M	Debt issuance Cost of debt	+ +	
Florou *et al.* (2010)	Global	M	S&P issuer credit ratings	+	
Florou and Pope (2010)	Global	V + M	Institutional ownership	+	Investor orientation Investor style Reporting incentives Strength of enforcement
Jeanjean *et al.* (2010)	Global	V + M	Bid–ask spread Analyst following Foreign ownership	No impact	
Karamanou *et al.* (2010)	Global	V + M	Insider trading	+	Strength of enforcement Sign of the surprise
Novotny-Farkas and Toniato (2010)	EU banks	M	Value relevance of loan-loss allowances	−	
Schleicher *et al.* (2010)	EU	M	Investment efficiency	+	Firm size Economy type (Insider vs. outsider economies)
Gaeremynck and Vergauwe (2010)	EU	M	Value relevance of fair value estimates	+	Auditor effort Disclosure

(*Continued*)

Table 2. Continued.

Paper	Sample	Voluntary/ mandatory	Outcome variable(s)	IFRS effect(s)	Contingent factors
Young and Zeng (2010)	EU	M	Valuation accuracy Cross-country accounting comparability	+	Global exposure Foreign peers Domestic peers
Single-country studies					
Dionysiou *et al.* (2010)	UK	V/M	Value relevance	+	Information environment
Choi *et al.* (2010)	UK	M	Value relevance	+	
Joos and Leung (2010)	USA	Adoption probability	Market reaction to events relating to IFRS adoption	+	Global comparability Litigation risk
Ernstberger *et al.* (2010)	Germany	M	Returns Trading volume Bid–ask spread	−	
Goh *et al.* (2010)	France	M	Value relevance of option expense	+	Disclosure quality Strength of enforcement
Kalogirou *et al.* (2010)	France	M	Capital structure	+	Net pension deficit
Morricone *et al.* (2010)	Italy	M	Value relevance	−	Intangible assets

processes than passive investors and income investors. Second, following the country–month analysis approach of Daske *et al.* (2008), country-level quarterly changes in ownership are seen to correspond closely to changes in the actual rate of IFRS reporting in each country. Finally, consistent with Daske *et al.* (2008), Florou and Pope (2010) find that the effects of IFRS adoption on institutional ownership are confined to issuer countries where institutions, preparer incentives and enforcement mechanisms are strong.

While Florou and Pope (2010) focus on institutional investors, Bruggemann *et al.* (2010) exploit a unique data-set capturing trading by individual investors in the German Open Market at the Frankfurt Stock Exchange. German individual investors can trade a large selection of foreign stocks on the Open Market. Using a sample of 4869 firms from 31 countries around the world, Bruggemann *et al.* (2010) find that stocks experience an economically and statistically significant increase in Open Market trading activity following mandatory adoption of IFRS. Over the sample period, there appears to be a substitution out of US equities and into European equities that coincides with IFRS adoption.

Market-level evidence on the role of IFRS financial statement information for equity market participants is found in studies of the impact of IFRS adoption on equity markets. At the macro-level, Joos and Leung (2010) follow a similar approach to Armstrong *et al.* (2010) in examining the impact on equity prices of policy announcements indicating an increased likelihood of IFRS adoption. Their sample comprises US policy announcements affecting the perceived likelihood of IFRS being accepted in the USA. They find positive stock price effects for firms where IFRS adoption is expected to increase global reporting comparability. However, market reaction is weaker for firms with higher litigation risk, suggesting lack of agreement on the benefits of IFRS, at least for some firms.

Young and Zeng (2010) explicitly attempt to model comparability effects associated with equity market valuation at the firm level. They examine the practical problem of multiples-based equity valuation in the international context by considering whether the use of international peer group data leads to more accurate valuation estimates compared to valuation estimates based only on domestic peer group information. They find evidence that the use of international peer group information leads to more accurate value estimates for firms with high global exposure. Moreover, the absolute valuation errors based on international peer group data are significantly lower than for valuations based on domestic peer groups in the post-IFRS adoption period. The findings of Young and Zeng (2010) suggest that mandatory adoption of IFRS increases cross-country accounting comparability and produces benefits in terms of more precise financial statement-based valuation estimates.

More general firm-level evidence on the valuation relevance of IFRS is provided by several INTACCT papers. Beuselinck *et al.* (2010b) examine whether mandatory IFRS adoption reduces firm opacity and contributes to stock price informativeness, based on the stock return synchronicity criterion. They document a V-shaped pattern in stock return synchronicity around IFRS adoption, suggesting that IFRS disclosures reveal new firm-specific information in the adoption period and subsequently lower future disclosure surprises. Beuselinck *et al.* (2010a) also find that analysts better incorporate industry-level information into stock prices; and that the IFRS reporting mitigates the private information advantage enjoyed by institutional owners. Again, the results in this study are largely related to firms in strong enforcement countries.

Bischof *et al.* (2010) find that the reclassifying banks they identified with inadequate disclosure notes suffer a long-term increase in investor information asymmetry and a reduction in liquidity, captured by the bid–ask spread, and negative market-adjusted returns. Thus, the evidence reaffirms that lack of transparency is penalised by the market.

Other studies have examined the relation between equity market values and IFRS financial statement numbers – so-called value-relevance studies – in a single country context.

Single country studies have the advantage of holding country-level institutional characteristics constant. The cost is that they are unable to provide generalisable results across institutional settings. For example, Choi *et al.* (2010) show that for UK firms the value relevance of published earnings increased and the information added by analysis in forecasting future earnings reduced with the implementation of IFRS. Morricone *et al.* (2010) report evidence that the value relevance of intangible asset disclosures by Italian firms does not increase in the post-IFRS period. Based on a sample of French firms Goh *et al.* (2010) report that the value relevance of executive stock option expense disclosures depends on the quality of disclosures relating to the valuation assumptions. Ernstberger *et al.* (2010) find that the market penalises firms that are subject to enforcement sanctions in Germany, suggesting that the market views deviations from IFRS as a negative signal.

5.3.2. *Sources of value impact*

Lambert *et al.* (2007) show using a theoretical model how improved financial transparency can affect security values and the cost of capital. Essentially financial disclosure can have direct and indirect effects. Direct effects are associated with improved estimates of firms' risk premia (equal to risk exposure, or beta, and the expected return on the market). Estimates depend negatively on the precision of the information provided by the firm. Additionally there might be indirect effects on firm value via cash flow expectations formed on the basis of enhanced financial disclosure. If cash flow expectations do not change proportionally to covariance estimates, firm value might change even if the cost of capital does not change. Thus, for example, if IFRS reporting enhances transparency and reduces misappropriation by managers and controlling shareholders, the resulting reduction in agency costs will enhance firm value even if the cost of capital does not decrease.

In light of the analysis in Lambert *et al.* (2007), it is therefore interesting that Botma and Joos (2010) find evidence that expropriation risk facing institutional shareholders falls because IFRS adoption under strong enforcement changes the relation between family/management and institutional owners.

Karamanou *et al.* (2010) examine a different form of informational risk faced by outside stockholders, namely, the risk of trading with informed investors. This information asymmetry increases trading costs and reduces market liquidity, especially around information events such as earnings announcements. Karamanou *et al.* (2010) find evidence that, after the implementation of IFRS reporting, event period abnormal returns are less pronounced than previously, suggesting that the market experiences fewer large surprises. Further the estimated abnormal returns that could be earned by insiders appear smaller post-IFRS.

5.3.3. *Debt market evidence*

A number of INTACCT papers have considered the wider impact of IFRS on decisions and decision-makers in the debt markets. Florou and Kosi (2010) and Florou *et al.* (2010) examine the relevance of IFRS financial statements for debt markets. Florou and Kosi (2010) find that mandated IFRS adoption is associated with an increase in the issuance of public debt (but not private bank loans) and with a reduction in the cost of debt on issuance, after controlling for other determinants of the cost of debt. Their results are consistent with the risk premium on corporate debt falling for mandatory IFRS adopters and with the supply of debt finance increasing. Further evidence that the supply of capital from debt markets depends on IFRS reporting is provided by Kalogirou *et al.* (2010). They show for a sample of French firms that leverage ratios (excluding pension obligations) fall for firms when they disclose unfunded pension obligations for the first time under IAS 19.

Florou *et al.* (2010) provide one potential explanation for the mechanism by which IFRS adoption affects the cost of debt. They show that issuer credit ratings from Standard and Poor's are better explained by financial statement information in the post-IFRS period. In other words, published financial statement numbers map onto credit ratings better when they are based on IFRS. This in turn suggests that credit analysts make fewer adjustments to published IFRS financial statement numbers. If analysts' adjustments represent a source of information risk, this could underpin an IFRS-related reduction in the credit risk premium.

Further evidence in support of the conjecture that IFRS reporting facilitates credit analysis is provided in Charitou *et al.* (2010), who examine changes in default risk around the mandatory IFRS adoption. Credit risk is estimated from a structural credit model. *Ceteris paribus*, estimated default risk changes when IFRS adoption leads to changes in recognised debt and lower future cash flow expectations. Default risk captures an element of uncertainty that is potentially reduced through the improved disclosure and transparency associated with IFRS. Results suggest that IFRS-based reporting reduces the likelihood that financially weak firms are able to conceal their weak status, especially where enforcement is strong. However, there is some evidence that firms for which default risk increases do attempt to engage in income increasing earnings management to mitigate the adverse effects of increased transparency due to IFRS.

5.3.4. *Summary*

The literature on the links between security (especially share) prices and financial statement information has a long history. Yet there is still much we do not know, partly because the technology we have developed in our research toolkit and the data to which we have access limit the questions we can ask. Thus, for example, even though we know from papers such as Lambert *et al.* (2007) that financial disclosure plays a theoretical role in estimating risk premia, we know surprisingly little about this role empirically (see Pope 2010, for more extensive discussion). Hence there is much more work yet to be done that could shed more light on the roles played by financial statement data prepared under IFRS and other reporting standards.

However, the general message coming through from the INTACCT research programme and other contemporaneous research being conducted elsewhere is that IFRS adoption in Europe appears to have coincided with a variety of positive market outcomes. The byline to this headline is that it all depends on factors that plausibly capture preparer incentives and the quality of the enforcement regime in a firm's country.

6. Discussion and conclusions

6.1. *The need for more research*

Some commentators express doubts that some of the observed market outcome effects documented in research to date are caused by the financial reporting regime change *per se* (see Christensen *et al.* 2011). There are other approximately contemporaneous regulatory changes, such as the EU's Market Abuse Directive and the Financial Transparency Directive, which could have similar positive effects on markets. However, it should be noted that the timing of effects of these other regulatory initiatives might not coincide exactly with IFRS adoption and could vary across countries. Furthermore, it is unlikely that non-accounting regulation would have stronger effects on outcomes for selected stocks or users where the accounting is expected to matter most. This strategy to solving the identification problem discussed earlier is used successfully in several of the INTACCT research papers referred to above.

It would be rash to claim that all the effects documented in recent research, some of which is described above, are a direct consequence of the introduction of mandated IFRS reporting. At the same time, the identification problem critique creates incentives for researchers to find ever more imaginative ways to prove that financial reporting is at work in explaining certain observable phenomena. The response will be ever more clever research designs, exploiting interesting new data-sets and drilling down into the accounting numbers and financial reporting disclosures in ways that leave no doubt that the researcher is uncovering accounting effects.

6.2. *A better enforcement framework?*

If uneven enforcement is an impediment to firms, financial statement users and economies realising the potential benefits of IFRS, what can be done to establish better enforcement? The problem for firms with incentives to produce high quality financial statements (e.g. firms with high growth opportunities and financing needs) but residing in countries with weak enforcement is that it is difficult to signal their high quality to the market. They can do so by bonding to a higher quality enforcement regime, such as the SEC in the USA, by cross-listing. A major impediment to this mechanism working within Europe is that, under the Transparency Directive, the national enforcer for EU firms is the enforcer in the market where a firm has its primary listing, so cross-listing within the EU does not appear to help an issuer to bond into higher quality enforcement. In any case, for some firms cross-listing might be viewed as prohibitively costly since these costs are borne entirely by the firm (i.e. its shareholders).

Alternatively, a firm might consider changing its domicile. Interestingly, this is increasingly common for corporate tax arbitrage reasons, so in principle it could also be a solution for high quality issuers located in low enforcement countries, as long as tax rates are not positively associated with enforcement quality.

A further solution, which would require a new regulatory mechanism, is suggested by Leuz (2010). His innovative proposal is to establish a global player segment (GPS), where firms meeting certain criteria designed to reduce the risk that they are low quality, for example, corporate governance quality and ownership structure, will select to be subject to rigorous scrutiny and regulation by a supra-national body, such as IOSCO, managing the GPS. The 'teeth' of the GPS regulator would essentially lie in the ability to 'name and shame' transgressors, as well as in placing constraints on other agents important to financial reporting quality such as authorised auditors.

If the political will existed to create it, the GPS system would almost certainly achieve its objective of creating a regulatory environment inspiring market confidence in high quality firms, whatever their origin. There are potential downsides, such as the cost and financing of the GPS, which Leuz (2010) addresses. However, while it is undoubtedly an innovative idea, there are also serious questions about whether EU member states would be prepared to cede to a supra-national body their regulatory authority over a group of firms that could comprise a very large proportion of the market capitalisation of European stock markets.

By comparison with the GPS proposal of Leuz (2010), the current devolved enforcement framework in the EU is certainly limited. A constraining characteristic of the current EU system that shines through as likely limiting the effectiveness of enforcement is the lack of transparency surrounding enforcement actions, especially in comparison to the very open approach followed by the US Securities and Exchange Commission. The framework set up by CESR emphasises the right to confidentiality, and although National Enforcers such as in Ireland do disseminate some information on the cases investigated and the decisions reached, there is great diversity of practice across Europe in how much information about the enforcement process is made public. We argue that this leads to overall loss of confidence in many parts of the European enforcement system.

Our alternative proposal to all the above options has the advantage of being based on a system of reciprocal cross-border service that already exists within the European Union. The closest analogy is the draft Directive on *The Application of Patients' Rights in Cross-Border Health Care* (2008/0142). At the risk of over-simplifying what seems to be developing into a quite complex piece of EU legislation, this Directive, if enacted, will require member states to pass legislation to enable foreign EU nationals to access the same health care that they would be entitled to in their home country of residence. Home countries will be required to reimburse patients for the cost of the same or similar treatment conducted in the home country. Setting aside the patient who benefits because s/he happens to be unlucky enough to be abroad with no insurance when essential treatment is needed, others will potentially benefit because they will have the option to travel cross-border within the EU to receive better quality or more timely treatment. This right already exists to some extent but the proposed Directive seeks to reinforce and clarify EU citizens' rights.

Our proposal can be summarised as follows: in place of 'health care' substitute 'financial reporting health check'. If (say) a firm from member state X believes it could benefit from better enforcement oversight by opting into member state Y's financial reporting health check system, it could be given a right to do so, with the expected costs associated with review and enforcement being paid by the National Enforcer of country X. This proposal would have several potential advantages, particularly in creating competition between different enforcement agencies to offer higher quality enforcement where it was efficient to do so, but to cede regulatory authority to more efficient agencies if local inefficiencies and cost disadvantages, for example, related to the supply of local expertise, could not be overcome.

6.3. *Conclusions*

Research suggests that firms and users do benefit from IFRS adoption. But by no means all firms or all users benefit. The results from research are typically 'on average' results and there is much information yet to be discovered by trying to better understand the world behind the observed average effects. The insight provided from recent research into the roles of legal and economic institutions in determining financial reporting outcomes is only one example of how research can help develop better understanding. Future work might consider further the importance of firm-level incentives and constraints such as corporate governance mechanisms and how they interact with properties of available financial reporting systems. It might be that the recognition, measurement and disclosure requirements of IFRS are not optimal for all types of firms and all stakeholder groups in all countries.

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Notes

1. Note that the Constitution includes one further objective: 'In fulfilling the objectives ... to take account of, as appropriate, the needs of a range of sizes and types of entities in diverse economic settings' (IFRS Foundation 2010).
2. Daske *et al.* (2009) use the term 'label adoption' when describing low quality adoption of IFRS.
3. The EEC objectives also included the free movement of persons, and goods and services.
4. For example, the Seventh Directive on Group Accounts provides options in the treatment of the definition of a subsidiary; exemptions from consolidations for parents that are not limited companies; exemptions where the ultimate parent is a non-EU company; exemptions for financial holding companies; the use of different valuation methods across the group; the use of proportional consolidation; and the immediate write-off of goodwill to reserves. See Roberts *et al.* (1996).
5. Pre-dating the Lisbon Conclusions, the Financial Services Action Plan and the Commission's Communications on Financial Services and Risk Capital had both called for the development of deep and liquid European capital markets to benefit both issuers and investors.
6. See Finance Director Europe, 1 September 2005.
7. On 1 January 2011, the Committee of European Securities Regulators (CESR) was replaced by the European Securities and Markets Authority (ESMA).
8. Ball *et al.* (2003) and Barth *et al.* (2008) are two key studies which, in motivating their research, set out the policy implications for regulators internationally.
9. For example, Dargenidou *et al.* (2006) consider cost of capital estimation from expected earnings growth during the initial stages of accounting regime change in Europe towards IFRS, conditioned by the quality of financial reporting at the firm level in terms of transparency and disclosure. See also Daske (2006) on the relations between accounting numbers and the estimated cost of equity capital at the time of initial IFRS adoption.
10. This ignores the possibility of conducting 'laboratory' experiments based on simulated market environments. Such experiments, while potentially insightful about aspects of human decision-making, are severely limited in their ability to capture the complexity of real financial markets comprising multiple interacting economic and legal institutions.
11. While elimination of this ambiguity is a considerable challenge to researchers, the existence of this ambiguity could work in the favour of policymakers, who might be able to claim credit for outcomes that would have occurred anyway.
12. See also Hail *et al.* (2010) on the potential adoption of IFRS in the USA.
13. There have been just four such notices since 2007. Where companies are asked or encouraged to make prior year corrections following a Panel enquiry, the Panel sometimes asks for a reference in the note explaining the correction and mentioning the discussions with the FRRP. As a result of the less consistent issuance of press notices in recent years, the influence of the FRRP on UK financial reporting is now less transparent, at least to the researchers. Even before 2007, researchers were handicapped in being unable to identify the full set of firms that were subject to FRRP investigations, from which the set of known adverse rulings were drawn. See, for example, Peasnell *et al.* (2001).
14. Another approach can be found in Qu and Zhang (2008), who explore the use of fuzzy clustering analysis based on a broad set of accounting items to characterise the degree of convergence between national GAAP and IFRS.

15. Private sector analysis such as Company Reporting also documents evidence on apparent non-compliance based on public information on a case-by-case basis.
16. Given space constraints, the discussion is far from a comprehensive review of INTACCT research output. Further information on published INTACCT research and working papers can be found at www.intacct-research.org
17. Ding *et al.* (2007, 2009) discuss the identification of IFRS–local GAAP differences and document considerable country-level variation in differences.
18. Ali *et al.* (2010) also examine loan-loss provisioning behaviour for a sample of Bulgarian banks.
19. INTACCT working papers are normally available as pre-publication drafts at: www.intacct-research.org/papers_wp/

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Discussion

PETER HOLGATE*

Senior Accounting Technical Partner, PricewaterhouseCoopers

[The views expressed here are the personal views of the author]

I would like to say something in terms of review comments on this paper, and also make some observations as a practitioner. It is good, first of all, to be reminded that the IFRS change in Europe is an experiment. I think that is a good way to define it or to view it. It is not an experiment in the sense that if you do not like it you can go back to where you were before, but nonetheless 'experiment' is quite a good description.

In his presentation, Peter Pope indicated that the benefits from increased transparency appear to be realised, but not on a uniform basis because of heterogeneous preparer incentives and enforcement mechanisms across countries. He went on to say that, despite evidence that the quality of application of IFRS was inconsistent, the IASB had been remarkably silent on the possible dangers of low-quality adoption. My reaction is 'They would, wouldn't they?'

If the IASB's aim is to achieve convergence and harmonisation, we would expect them to say that this is a good thing and that it is happening, rather than trumpeting what the differences are and how ineffective it is. I will come back to that point in a moment.

Pope and McLeay also point out that in speeches Messrs McCreevy and Tweedie state that there will be a more efficient capital allocation and lower cost of capital. They remark that that is a bold claim. I think that is right. It is an assertion that those making it hope becomes true, if you repeat it often enough. That is, I think, quite a dangerous expectation.

Section 4 of the paper is more a listing of research difficulties, and I did feel that that was perhaps overdone in the paper to the point of minor depression. However, I know that researchers have to be very rigorous and careful about the claims that they make, which I will instance in a moment.

Section 5 of the paper seemed much more interesting to the practitioner, not least for the cautious wording used to describe research findings. 'Earnings management might also be attempted for less benign reasons, such as influencing the outcome of debt contracts, management compensation and so on.' Note the word 'might'. 'Earnings management might also be attempted to meet market expectations and influence security prices.' I think this is using the word 'might' in the sense that Christmas 'might' arrive less than one week after 20 December.

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*Email: peter.a.holgate@uk.pwc.com

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There is a general conclusion in Section 5: 'The general message coming through from the INTACCT research programme is that IFRS adoption in Europe appears to have coincided with a variety of positive market outcomes. The byline is that this depends on different enforcement regimes.' The phrase 'appears to have coincided' is, I think, used in academic writing in the same sense that I could observe that the slightly reduced numbers of those present at the conference where this paper is presented 'appear to have coincided' with unprecedented travelling difficulties due to deep and persistent snow across several continents.

The paper suggests that high-quality companies based in low enforcement regimes might want to move to a regime that gives them tougher enforcement. That is an interesting idea. Why would companies want to do that? They might want to do it because it is better for their reputation, to be seen to be better enforced and better regulated, and that says something about the quality of the company and its reporting. I can certainly see that that would be attractive to some companies, but it is probably not as straightforward as that. I can imagine that there might be a series of competitive alternatives. If you compare London with Luxembourg, for example, you might say that they are not in the same place in this respect, and some would gravitate towards London. Others might gravitate to Luxembourg, or indeed Athens, for different reasons, placing themselves at different points on the spectrum of regulation. I think it is not necessarily all in one direction.

As a practitioner I want to return to the idea of 'truth by repeated assertion'. The idea of the IASB and Charlie McCreevy talking about the cost of capital being reduced and capital being allocated more appropriately certainly is intuitively appealing and probably true but, of course, they are said frequently enough until people believe they are true. The role of academic research is to investigate whether the assertion can be supported by evidence and stands up to enquiry.

I would like to pose this question from a practising point of view: are the assertions true and, whether or not they are true, are we really achieving what is claimed? The advantage of having everyone carrying out the same accounting seems pretty obvious, but I do not necessarily think we should aspire to that on a worldwide basis. There is a lot of evidence that IFRS across most countries is a beneficial system, which has been advantageous to business, the professions and the financial markets. It is altogether more questionable to consider whether IFRS is going to be suitable in the US markets or whether, conversely, US GAAP, by affecting IFRS and so being imported into the rest of the world, is going to be valid outside the USA. This is because the US GAAP system has been developed over the years very much in response to a very particular market, which I do not think is replicated elsewhere.

Have we achieved the outcomes and the degree of harmonisation, and therefore the cost-of-capital benefits that are said to come from that? The answer is 'yes, partly but not entirely'. If you compare the degree of common understanding of IFRS as between 2005 and now, my experience certainly is that across Europe, and to some degree across the world as a whole, practising firms and companies have a much better common understanding of what IFRS means. That tends to give rise to the same accounting, whatever the jurisdiction; but is that perfect? No, it is certainly not, and it has some way to go. In a way, the forthcoming introduction of more countries, including Japan, India and Canada, will necessarily involve us taking a step or two backwards. Over a number of years the common understanding of IFRS will come together again.

I will draw to a close at that point. The title of Pope and McLeay's paper indicates a five-year perspective on the IFRS experiment. It is rather like the remarks attributed to Zhou Enlai, who was Premier of China, when he met US President Kennedy. As is well known, possibly apocryphally, Kennedy asked the Premier what he thought of the French Revolution and he said: 'It is probably too early to say.'

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International Financial Reporting Standards: what are the benefits?

PHILIP BROWN*

Australian School of Business, The University of New South Wales and Business School, The University of Western Australia (M250), 35 Stirling Highway, Crawley, WA 6009, Australia

When countries have announced plans to adopt IFRS in lieu of the standards that had applied previously, they have referred to a number of benefits, mostly to do with equity markets. So it is not surprising that academics have looked to equity markets to assess the extent to which benefits may have materialised. The evidence they have gathered can fairly be characterised as mixed, partly because of differences in samples and the use of a wide range of proxies for the same underlying but unobservable idea. Nonetheless, it seems relatively clear that the shift to IFRS has had many consequences both for the valuation of equities and for equity markets more generally. Although there will always be winners and losers from changes in accounting standards, if only because of their distributive effects, undoubtedly some consequences are regarded by companies and investors as, on balance, beneficial. However, the story is far from complete. Ample scope remains to expand the range of possible benefits that are investigated and to improve, substantially, the methods used to seek them out.

Keywords: accounting standards; analysts; forecasts; benefits of IFRS; cost of capital; globalisation of equity markets; liquidity in equity markets

1. Introduction

This paper was prepared for presentation at the Information for Better Markets Conference held in London in December 2010 and sponsored by the Institute of Chartered Accountants in England and Wales (ICAEW). The Institute's remit for this paper is captured in the title. I confine my remarks largely to benefits that may be found in financial markets and say little about the costs.

Over the last few years many attempts have been made to assess the extent of benefits of adopting international financial reporting standards in lieu of a country's domestic standards. Typically, researchers have conducted archival studies of capital market effects in countries where consolidated financial reports have been prepared according to IFRS[1] for some years. In Europe and Australia, for example, consolidated financial statements prepared under IFRS

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*Email: philip.brown@uwa.edu.au

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have been mandatory for listed companies since January 2005. In various countries, such as Germany, listed companies were permitted to adopt IFRS even before they became mandatory. New Zealand and Korea have both followed a similar pattern more recently.

Although the evidence from these studies is not unequivocal, there is little room to doubt important economic benefits can be gained by adopting IFRS. However, the extent of the benefits actually achieved in any one country depends upon many things. They include: the nature of the standards used before the change to IFRS; the credibility of any representation that the financial statements comply with IFRS;[2] the presence of legal or other regulatory backing for the standards; and the degree of compliance monitoring and enforcement.

In this paper, I will address five related questions, because the answers to these questions have led me to form the view that the benefits are potentially substantial. First, what is the role of financial accounting standards? Second, when countries have adopted IFRS in particular, what benefits have they sought? Third, what has been their experience? Fourth, what else needs to be in place to gain the greatest benefits from IFRS? Fifth, what does the future hold?

2. The role of financial accounting standards

Although the first treatise on accounting methods was printed more than 500 years ago,[3] accounting standards as we know them today are a relatively recent development. They have largely evolved in Western countries with comparatively well-developed capital markets, where fungible ownership rights are traded.

Accounting standards are important in a well-developed capital market because they help resolve a serious agency problem. Broadly speaking, insiders – that is, the firm's controllers, manager-entrepreneurs or 'managers' for short – are better informed than outsiders about their firm's investment opportunities, about how hard they, the managers, will work and the perks they will consume, and how well the firm is doing overall. However, to grow the firm, the managers may need access to more capital, which is controlled by others who are outsiders. Being outsiders, they do not know as much as the managers do about the firm's investment opportunities, and they do not know how hard the managers will work or how much they will consume in perks. But they do know that managers will act in their own self-interest, and that from time to time they will take advantage of opportunities to do so. Armed with this knowledge, outsiders will still supply more capital, but only at a premium reflecting the cost to them of not being as well informed as are the managers about the return they can expect from their money. Therein lies the problem: what can managers do to increase their own wealth by reducing the firm's cost of capital, a cost which inevitably reflects the information disadvantage of the financiers?

One thing the managers can do is agree to provide information; to have their performance monitored and their performance reports to outsiders independently verified by professional auditors. Theoretically, having agreed to such a monitoring and reporting process, the managers could then write individual contracts with their financiers, guaranteeing to provide each one with a specially tailored and audited report. But in countries with well-developed capital markets, the number of individual contracts for large corporations would be virtually limitless and their total cost prohibitive. So, where primary and secondary capital markets are important to an economy, uniform accounting and auditing standards will be found because they are a relatively low-cost solution to a serious agency problem.

The bottom line, so to speak, is this. Accounting standards are important if not crucial in a complex financial market because they underpin how capital is allocated and performance is monitored and rewarded.

Accounting standards have differed from country to country, because of differences across countries in the economic and social forces that have interacted in the past to determine those countries' accounting standards today.

> [M]uch of the diversity [in accounting standards across countries] results from deeply entrenched differences in legal systems, [in] the relationships between firms and their financiers, [in] income tax systems, [in] inflation rates, [in] historical ties (political and economic), [in] the extent of economic development and [in] the level of community education. (Brown and Clinch 1998, p. 21, reflecting on reviews by Meek and Saudagaran 1990 and Saudagaran and Meek 1997)

Moreover, many of those differences are deep-seated and will not disappear quickly after a country commits to adopting IFRS.

There is a related argument. International accounting standards issued by the IASB are heavily influenced by Anglo-American traditions. They have been framed by reference to developments in countries with a tradition of relatively strong, legal protection of property rights – importantly, against violation of the rights of minority shareholders by controlling shareholders and violation of the rights of shareholders in general by managers. As many have noted, adoption of international accounting standards by countries with other traditions will not, in itself, lead automatically to the same outcomes.

3. What benefits have countries sought by adopting IFRS?

As of early December 2010, for domestic listed companies in 154 jurisdictions with a stock exchange, IFRS were required for all companies in 91, IFRS were required only for some companies in 6 and IFRS were permitted but not required in 26. IFRS were not permitted in 31 jurisdictions.[4] There are many reasons why countries have adopted IFRS. For some the demand has been driven primarily by the needs of large corporations seeking access to international public equity markets, and large financial intermediaries (institutions) seeking global investment opportunities; sometimes market providers, such as the Australian Securities Exchange, have promoted adoption of IFRS in the hope of deepening their own markets.

The expected benefits for European companies were listed in an EU statement issued in Brussels on 7 June 2002.[5] It said (emphasis supplied):

> ... requiring listed companies, including banks and insurance companies, to prepare their consolidated accounts in accordance with International Accounting Standards (IAS) from 2005 onwards ... will *help eliminate barriers to cross-border trading* in securities by ensuring that company accounts throughout the EU are *more reliable* and *transparent* and that they can be *more easily compared*. This will in turn *increase market efficiency* and *reduce the cost of raising capital* for companies, ultimately improving competitiveness and helping boost growth.

The IAS Regulation permitted deferral of adoption of IAS until 2007 in the case of EU companies which were listed in a non-member state and which at the time were using US or other internationally accepted standards as their primary basis of accounting (Regulation 1606/2002, Article 9b).

In Australia, a 1997 government discussion paper[6] said (emphasis supplied):

> The ultimate objective for the setting of accounting standards in Australia should be the production of high quality accounting standards that facilitate Australian business by leading to *lower costs of capital* and enabling Australian companies to *compete on an equal footing overseas*, while also *maintaining investor confidence*. (p. 1)

> … compliance with IASC Standards … should … make Australian standards more internationally recognisable, so that Australia's capital market is *not out of step with major overseas capital markets*. (p. 2)

Korea made IFRS mandatory from 1 January 2011. Chungwoo Suh, Chairman of the Korea Accounting Standards Board and President of the Korea Accounting Institute, has made the following statement (emphasis supplied):[7]

> The benefits of IFRS adoption will not merely be limited to the *competitiveness* of Korean companies through their *enhanced transparency* but will also provide *opportunities for Korea accounting industry to expand worldwide* … There will be a good opportunity … to create new overseas markets where Korean firms can provide our IFRS adoption experience to the countries that are considering adopting IFRS. *Korean financial companies may also develop new global markets opportunities* through utilizing the common platform of IFRS.

In summary, the benefits typically sought by adopting IFRS are to eliminate barriers to cross-border investing; to increase the reliability, transparency and comparability of financial reports; to increase market efficiency; and to decrease the cost of capital. A typical un-stated benefit is to share the costs of standard-setting and securing compliance with accounting standards.

4. What benefits have been found?

4.1. *Some general comments*

More than 100 research papers have dealt with various aspects of the adoption of IFRS.[8] Some have been published in scholarly journals and others are still in the form of working papers. Despite the many papers that have been written, it is nonetheless clear that researchers have not yet studied all of the issues that appear to matter to governments. For example, I am unaware of any scholarly papers on changes in regulatory costs following the adoption of IFRS or whether any potential savings are being committed to say increased compliance monitoring and enforcement in order to secure better overall outcomes. It is also clear that researchers frequently have disagreed on the correct answers to some of the specific research questions that have been addressed.

Many different countries have been studied. Leaving aside 'multi-country' studies, of which there are quite a few, papers I have reviewed recently relate to Australia, Austria, Finland, France, Germany, Greece, Kenya, Malaysia, Netherlands, New Zealand, Norway, the People's Republic of China (PRC), Russia, Switzerland and Turkey. There would be papers on other countries not on this list. Germany has been written about relatively frequently.

Settings that have been studied are (1) voluntary adoption – that is, what IFRS have meant for companies that chose to adopt them when they were permitted to do so, often before they became mandatory at a later date; (2) mandatory adoption – there have been many studies of companies that adopted IFRS when they had no choice, such as listed companies in Europe in 2005;[9] and (3) both voluntary and mandatory adoption. When firms are offered the choice, as in Germany before 2005, the probability of voluntarily adopting IFRS increased with the firm's size, the extent to which it operated internationally and if it was recently listed, and decreased with the concentration of its ownership (Gassen and Sellhorn 2006). The probability has also been found to decline with greater borrowings and the involvement of banks (Günther *et al.* 2009), and to increase with the strength of the firm's commitment to greater transparency (Daske *et al.* 2009). Katselas (2010) found firms were more likely to be early adopters when they operated within a lower information environment, had a stronger performance record and were domiciled in a country with a higher perception of corruption.

There has been some diversity in the research methods that have been used. A relatively small number of papers have been based on responses to questionnaires. For example, a 2007 survey of executives of German 'DAX-30' companies found most believed IFRS would improve the comparability of financial statements, while the complex nature and cost of adopting IFRS and the volatility of earnings calculated by applying IFRS were among the most important challenges they faced (Jermakowicz *et al.* 2007). And an online questionnaire survey of 426 auditors, analysts and users in 27 European countries on the meaning of 'comparability' found 67% of them interpreted it as meaning 'uniformity', with a strong preference for comparability over time and within the same industry (Cole *et al.* 2010). There have been a few experimental papers as well. However, most studies have been archival in nature and I will confine my remaining remarks to them.

One study should be mentioned at the outset. It was a study of the benefits expected by stock market investors in the lead up to the mandatory adoption of IFRS. For about 30 years there has been a research tradition of examining market reactions to events that happened before an accounting standard was issued (Noreen and Sepe 1981). The events are chosen because they signalled a substantial change in the odds that a standard eventually would be issued. This methodology was used to study 16 separate events leading up to the adoption of IFRS in Europe (Armstrong *et al.* 2010). The sample was drawn from 18 countries, with the UK being represented the most heavily. Overall, event period returns were positive for firms that previously had been characterised by lower quality information and greater information asymmetry, indicating IFRS were expected on balance to benefit their shareholders at least in wealth terms. However, concerns about the effectiveness of the enforcement process may have led to lower equity values of firms in countries with a code law rather than a common law tradition.

4.2. *Eliminating barriers to cross-border investing*

As already mentioned, one benefit sought by adopting IFRS is to eliminate barriers to cross-border investing. A common complaint has been that differences in accounting standards have made it more difficult for financial analysts to forecast a firm's future earnings, so scholars have looked at how IFRS adoption has affected bias, accuracy and disagreement in analysts' forecasts, or the number of analysts following a stock and sometimes the volatility in their forecast revisions.

An early study found analysts' forecasts were more accurate following adoption of IAS and that prior to adoption, the size of the forecast error was greater when the difference between IAS and the domestic accounting standards was also greater (Ashbaugh and Pincus 2001). A much later study also considered changes in the accuracy of analysts' forecasts for both voluntary and mandatory adopters, as well as for firms that for one reason or another had not adopted IFRS (Horton *et al.* 2008). It found the largest improvement in forecast accuracy was for mandatory adopters. Another international study found analysts upgraded their recommendations following the adoption of international accounting standards, consistent with there being signalling and bonding benefits when a firm committed to applying international accounting standards (Karamanou and Nishiotis 2009). An Australian study found that IFRS adoption had resulted in more accurate earnings forecasts where reported goodwill was a larger component of the firm's assets. Greater accuracy was attributed to the introduction of impairment testing under IFRS in lieu of amortisation, which had been required by Australian accounting standards before 2005 (Chalmers *et al.* 2010b).

Learning effects are a common finding. They are only to be expected when dealing with complex matters and they extend to users and regulators, as well as preparers. To illustrate, there was substantial non-compliance in the early post-IFRS reports of 50 large Australian listed companies with respect to impairment testing of goodwill (Carlin *et al.* 2007). Accounting for goodwill has been a problem area in countries where capitalisation and amortisation of goodwill on acquisition had previously been required. Learning also was apparent in a study of analysts' consensus forecasts for German companies. Forecasts generally were more accurate when based on IFRS rather than German standards, although forecast accuracy was lower in the transition year (Ernstberger *et al.* 2008).

The removal of barriers to cross-border investing by adopting IFRS can be found in the decisions of international investors. US mutual funds increased their holdings in European companies that adopted IFRS relative to their holdings in a control group of companies domiciled in nine non-IFRS-adopting countries (DeFond *et al.* 2009). For mandatory adopters, the mutual funds increased their holdings only in countries where implementation of IFRS was likely to be more credible. Similarly, IFRS adoption has led to increased stock ownership by international mutual funds, which was attributed to reduced information processing costs and greater comparability of financial statements (Yu 2009). Another recent study used a global ownership database covering more than 144,000 institutional investors from around the world to study changes in equity ownership, following the adoption of IFRS (Florou and Pope 2009). Ownership increased in the adoption year and the next year as well, but only in countries where there was stricter legal enforcement, lower corruption levels and relatively low levels of earnings management.

4.3. *Accounting and disclosure 'quality'*

In a number of studies the authors have argued adopting IFRS has brought benefits in the form of higher quality financial statements.

Experts regularly rate the quality of *disclosures* by companies in Austria, Germany and Switzerland. One study (Daske and Gebhardt 2006) concluded it had improved under IFRS in these three countries, which in 2004 accounted for more than half the companies known to have adopted IFRS at the time.

Others have focused on measures of 'accounting quality', of which there are many. Examples of so-called lower quality earnings are when the firm has engaged in more income smoothing, or made larger accruals adjustments when calculating net income, or has used less conservative accounting practices. One study concluded adoption of IFRS did not constrain earnings management compared to German GAAP; companies that did adopt IFRS subsequently engaged in more income smoothing, not less, although the effect was not as apparent among firms with a Big 4 auditor (Van Tendeloo and Vanstraelen 2005). Similarly, it was found that accounting quality, indicated by several proxies for the degree of earnings management, did not improve in Germany following adoption of IFRS (Goncharov and Zimmermann 2006). Yet another study, based on a sample of over 1600 companies in 21 countries where IFRS were adopted in 2005, reported firms exhibited more income smoothing, less conservatism in their accruals and less timely loss recognition (as in Basu 1997) after adopting IFRS (Ahmed *et al.* 2010). However, others have found differently. One employed 15 proxies to measure earnings management in 17 European countries (Aussenegg *et al.* 2008). There was less earnings management post-adoption in Central European countries, although there was no change for companies in the UK, Ireland or Northern Europe. Another study found accounting quality improved after companies adopted IFRS, for a sample drawn from 21 countries, in that there was less earnings management and more timely loss recognition (Barth *et al.* 2008).

One of the more recent studies used five indicators to compare changes in accounting quality of companies in 15 European countries following adoption of IFRS, again with mixed results (Chen *et al.* 2010). On the one hand, 'quality' appeared to increase, since the absolute size of discretionary accruals declined and there appeared to be less managing of earnings towards targets.

On the other hand, 'quality' appeared to decline, since earnings smoothing evidently increased while losses were recognised in a less timely fashion.

Two other measures of the 'quality' of earnings are their time series persistence and their ability to predict future cash flows. IFRS and domestic GAAP earnings have been found to be indistinguishable according to these two measures (Atwood *et al.* 2011).

In brief, it is obvious that not all studies have reached the same conclusion. Different samples and different proxies for 'quality' must explain much of the confusion in the literature.

4.4. *An aside on the influence of standards relative to managers' incentives*

It has been argued that managers' incentives dominate standards in determining accounting quality. The extent of earnings management and timely loss recognition has been measured before and after adoption of IFRS by German companies. The companies were classified in two categories, the early (voluntary) adopters and those that 'resisted' adoption (that is, they chose not to adopt IFRS until they were required to do so in 2005). Improvements occurred only among the former (Christensen *et al.* 2008). But when propensity matching was used to control for differences in German firms' incentives to adopt IFRS early, significant improvements were found in the earnings quality of voluntary adopters relative to their propensity-matched counterparts in that the earnings of the IFRS-adopters were more persistent, more predictable and more conditionally conservative (Gassen and Sellhorn 2006).

Relatively few studies have focused on Asian economies. An exception is one that measured earnings quality by Basu-type timeliness (Ball *et al.* 2003). Reporting incentives in Hong Kong, Malaysia, Singapore and Thailand were said to have much in common with code law countries, although institutional characteristics were consistent with reduced demand for higher quality reports. It was then argued that preparers' incentives (primarily the incentives of the boards of the reporting companies) can be a powerful differentiating characteristic when comparing 'quality' across countries.

Finally, it has been claimed that the capital market environment and the economic cycle during the adoption period are more powerful explanations for differences in earnings quality indicators than voluntary or mandatory adoption of IFRS (Günther *et al.* 2009). The implication is that managers' incentives, as reflected in the voluntary adoption of IFRS, do not obviously dominate accounting standards as far as earnings quality is concerned.

4.5. *Comparability*

In the context of accounting standards, comparability refers to the ability to use accounting data to draw valid inferences about similarities and differences both between entities and for the same entity over time; improved comparability of financial statements is another potential benefit of adopting IFRS. However, IFRS do allow some choice among accounting policies. So it is not surprising that a review of 16 accounting policies employed by 'blue chip' companies in the largest five stock markets that used IFRS found national practices pre-dating IFRS tended to be preserved post-IFRS where they were allowed. This has led to 'national patterns of accounting' that may limit comparability (Kvaal and Nobes 2010). In particular, changes in the comparability of accounting numbers in Germany and Italy, both code law countries, have been studied (Cascino and Gassen 2010). While comparability may have improved post-IFRS, incentives at country, regional and firm levels have remained influential.

Diversity in accounting practices can be expected to increase the dispersion of accounting measurements of the same underlying event. One study, based on a sample of 81,560 firm-years drawn from EU and Australian companies over the period 1994–2004 and in 2006, found statistically significant reductions in the variability of ratio measures in the post-IFRS period, where variability was measured by the coefficient of variation (the ratio of the standard deviation to the mean) both across industry groups and across countries (Jones and Finley 2010).

An alternative approach is to assess the extent to which accounting numbers pre- and post-IFRS can be compared to a reasonable benchmark, such as accounting numbers under US GAAP. One study found the adoption of IFRS improved the comparability of a firm's results with those of US firms reporting under US GAAP, although differences have remained (Barth *et al.* 2010). An alternative benchmark is to use stock price as the object of comparison; that is, to predict stock prices using accounting variables prepared previously under domestic GAAP and subsequently under IFRS, and then to examine differences in the pricing errors. The adoption of IFRS in Australia and Europe has been investigated along these lines, using the 2004 'as reported pre-IFRS' data and the '2004 as re-stated to post-IFRS' data in 2005 annual reports. It was found that, at least for 2004, IFRS so improved the comparability of accounting information produced by companies domiciled in common law and code law countries that, post-IFRS, legal origin no longer helped explain the size of the pricing error (Clarkson *et al.* 2010).

4.6. *'Usefulness' and 'value relevance'*

Many studies have compared the 'usefulness' or 'value relevance' of domestic GAAP and IFRS to investors. This type of study typically compares some property of the returns–earnings relation, or fits an Ohlson-type model that relates stock price to book value of equity (BVE), earnings and other information not yet recognised in the accounts. Results have been mixed, with improvements reported in some countries but not in others. For example, IFRS-based earnings have had greater explanatory power for returns in Spain, Italy and the UK while BVE and earnings had greater explanatory power for prices in France, Germany and the UK (Devalle *et al.* 2010). An earlier study had found that, over the period 1998–2002, BVE played a greater valuation role under IFRS than under local GAAP, while the importance of IFRS earnings was less (Hung and Subramanyam 2007). On the other hand, a marginal improvement was found for IFRS relative to local GAAP in Finland (Jarva and Lantto 2010).

A British study found UK GAAP–IFRS reconciliations (foreshadowed under IFRS 1) were value-relevant, although there was evidence managers had delayed the disclosure of bad news associated with IFRS adoption until after the event (Horton and Serafeim 2008). Goodwill impairment and deferred tax adjustments were the two reconciliation items that were newsworthy from a share market perspective; others had no net effect because they were either predictable at an earlier date or mutually offsetting.

An Australian study found no evidence that IFRS earnings and BVE are more value-relevant than the corresponding Australian GAAP (A-GAAP) measures, but closer inspection revealed that again the goodwill component of the difference between IFRS and A-GAAP did improve value relevance (Goodwin *et al.* 2008). A second Australian study of the period 1990–2008 confirmed a lack of improvement in the combined explanatory power of earnings and BVE, although the explanatory power of earnings did improve post-IFRS, especially among large firms (Chalmers *et al.* 2010a). Little evidence of increased value relevance was found following adoption of IFRS in Norway, although once again there was some evidence that the treatment of intangibles under IFRS (capitalisation along with impairment testing, instead of immediate write-off or amortisation) was more value-relevant (Gjerde *et al.* 2008).

It has been observed that Greece is not a particularly favourable setting for IFRS, because of its code law and bank-financing orientation, concentrated ownership of companies, poor protection of the rights of minority shareholders and other weaknesses in its regulatory environment

(Karampinis and Hevas 2010). Only minor benefits followed when companies in Greece adopted IFRS, where the benefits were measured by conditional conservatism and value relevance. In contrast, timeliness and earnings conservatism improved in a neighbouring country, Turkey, with the post-adoption improvement being more noticeable among financial firms (Kaytmaz Balsari *et al.* 2010).

Moving our attention to the Asian region, more than 10 years ago it was found that in a transitional economy, the PRC, there was no difference in the explanatory power of accrual measures under IAS compared with PRC accounting standards when predicting either (1) future cash flows or (2) annual returns on PRC stocks that could be held by international investors (Eccher and Healy 2000). The PRC-based measures were more strongly related to returns on stocks that were held exclusively by domestic investors. These results were attributed to an insufficiently developed infrastructure for compliance monitoring and enforcement. In Malaysia, there has been a closer relationship between stock price and BVE and earnings in the post-IFRS period (Kadri and Zulkifli 2008), while both the value relevance of earnings and earnings quality have improved (Wan Ismail *et al.* 2010).

Returning to Europe, it has been claimed that German GAAP was more value-relevant than IFRS based on 2000–2004 data for a sample of companies listed on the Frankfurt stock exchange (Schiebel 2007). However, this claim is inconsistent with a study of DAX-30 companies over the period 1995–2004, for which both IFRS and US GAAP yielded higher value relevance estimates (Jermakowicz *et al.* 2007) and it is inconsistent with the finding that the ERC, which is the slope coefficient on earnings in the returns–earnings relation, is greater for IFRS-based earnings of German companies (Bartov *et al.* 2005).[10] It is also inconsistent with the finding that IFRS led to more informative earnings and book values for more transparent European banks, but only earnings was more informative when the bank was smaller and, presumably, less transparent (Agostino *et al.* 2010).

4.7. *Market efficiency, liquidity and the cost of equity capital*

If the adoption of IFRS signals the firm is now committed to using higher quality accounting standards, to greater disclosures and to more openness and transparency in its dealings with outside investors, and if the firm honours that commitment, then its stock could be priced more efficiently in financial markets. Some authors have interpreted that to mean its stock price should change more often while others have argued that greater efficiency implies relatively more of the stock's market volatility would be driven by news about the firm itself, rather than by news about other firms. The latter group of authors have attempted to capture these changes using measures of 'synchronicity', which could be something as simple as the *r*-squared (RSQ) from the Market Model that was developed at the University of Chicago as such a powerful research tool in the early 1960s. For example, in order to gauge a stock's synchronicity, its weekly rate of return might be regressed on the average return on the market as a whole and on other stocks in the same industry, perhaps including lagged values of the market and industry averages as well. A lower RSQ would then be interpreted as relatively more price-sensitive information is being revealed about that particular firm. In broad terms, that is a consistent finding, although it is mainly found in countries with stronger protection of the rights of minority shareholders and stricter enforcement of the law.

IFRS-based disclosures appear to have improved the efficiency of stock prices by reducing the extent to which the market is surprised by future disclosures (Beuselinck *et al.* 2009). The same study also found improvements in analysts' ability to process industry-level information and that the value of private information held by institutional shareholders was reduced. These results were more applicable to companies operating in countries with a reputation for stronger enforcement. A similar result was found in another study of 34 countries, in that synchronicity was lower following the voluntary adoption of IFRS (Kim and Shi 2010). The 'efficiency' gains were smaller for firms with a larger analyst following and where the institutional infrastructure was stronger, as we might expect. Synchronicity in the stock markets of 44 countries was the subject of yet another study, which concluded that 'better' accounting standards (identified as IFRS or US GAAP) helped to improve it, but only in countries with stronger protection of the rights of minority shareholders and stricter enforcement of the law (Wang and Yu 2009).

There is a saying in markets that 'liquidity begets liquidity', because more investors with money to invest and more companies seeking additional equity capital are drawn to more liquid markets. Market operators also like to run more liquid markets for fairly obvious reasons of self-interest. And IFRS have a potentially beneficial role to play in fostering more liquid markets. The question, then, is whether they fulfil that role. A number of studies have found that they do. For example, the Open Market at the Frankfurt Stock Exchange offers German investors the opportunity to trade in about a third of all foreign listed companies worldwide, many of which have adopted IFRS. Stocks that adopted IFRS were later traded more actively, with the mandatory adopters experiencing relatively greater volumes (Brüggemann *et al.* 2009). In an early study, the volume of trading (one of the many measures of market liquidity) among German firms that had switched to IFRS was found to be greater than the trading volume of those that retained domestic GAAP, while bid–ask spreads were narrower (Leuz and Verrecchia 2000). To be specific, the bid–ask spreads of German firms that voluntarily adopted IFRS before 2005 subsequently fell by an average of 70 basis points (0.7%) and there was an average of 17 more days of price changes each year, which is another measure of liquidity (Gassen and Sellhorn 2006). Furthermore, when the bid–ask spread was decomposed into adverse selection and other costs, it was found that the adverse selection component declined following adoption, although not for voluntary adopters (Katselas 2010).

According to many advocates of IFRS, the ultimate equity market benefit to the firm is to lower its cost of capital, on the assumption outside suppliers of capital would not need the same level of price protection. Stockholders would then benefit because the firm's existing activities would become more valuable, future growth opportunities would become more worthwhile and some otherwise marginal projects would become economically viable. The economy as a whole would benefit from expanded employment opportunities.

One of the earliest and most widely cited studies of the cost of capital found no evidence that IFRS led to a lower cost of capital among German companies that adopted IAS/IFRS or US GAAP between 1993 and 2002 (Daske 2006). Indeed, during the transition period they faced a higher expected cost of capital. In contrast, a lower cost of capital was reported for an industry-specific sample of 35 banks, in seven European countries, that adopted IFRS (Palea 2009). Further, a much wider study, based on a sample of more than 20,000 firm-years drawn from 34 countries, including Germany, over the period 1998–2004, likewise found the cost of capital was lower for IFRS-adopters (Shi and Kim 2007). Another paper also reported reductions in the cost of capital, evidenced by positive returns at the announcement of adoption followed by lower long run returns after the event (Karamanou and Nishiotis 2009). To be precise, it has been estimated, for a sample of more than 6000 firm-year observations on more than 1000 EU firms over 12 years (1995–2006), that the cost of capital for mandatory adopters fell by a non-trivial 47 basis points (Li 2010).

A link has been drawn between the benefits of adoption and the strength of the firm's commitment to comply with the standards (Daske *et al.* 2009). More 'serious', voluntary adopters were found to benefit more from larger increases in market liquidity and larger declines in the cost of capital. Serious adopters were identified in ways designed to reflect the strength of their incentives and their actual reporting behaviour.

Some studies have attempted to capture equity market effects by using multiple indicators of market outcomes. For example, EU firms have shown some evidence of small reductions in the cost of capital after they adopted IFRS, while their stock market liquidity has improved (Hail and Leuz 2007). A wide-ranging study of thousands of companies in 26 countries found liquidity and companies' market capitalisations increased even before adoption, the latter indicating a lower cost of capital (Daske *et al.* 2008). Voluntary adopters benefited more, which is consistent with self-selectors having had greater incentives in the first place. However, we should not attribute all of the benefits from greater liquidity and a lower cost of equity capital to the adoption of IFRS as many improvements in enforcement, corporate governance and auditor independence have taken place at the same time, as others have noted (Hail and Leuz 2007). And that is to say nothing of the confounding effects of the many enhancements that have been made to financial market trading methods and to the trading platforms of market operators (see, for example, Mercorelli *et al.* 2008).

5. What else may be necessary to achieve maximum benefits from IFRS?

First is the need for effective enforcement. Enforcement is an essential component of the institutional fabric for securing compliance and the benefits from adopting IFRS, although there may be some scope for variations in the structure of the enforcement body and its methods of operation (Brown and Tarca 2007).

Important interactions have been found between enforcement and improvements in analysts' forecast accuracy and dispersion (Byard *et al.* 2010), and in financial reporting quality, after adopting IFRS. One comprehensive study of the latter (Cai *et al.* 2008) was based on more than 100,000 firm-year observations drawn from 32 countries between 2000 and 2006 and employed a country-level enforcement index (Hope *et al.* 2006). The extent of earnings management was found to have been declining over time and it was less prevalent in countries with a stronger enforcement process. Another large-scale study (Houqe *et al.* 2010) used country-level ratings obtained from the 2008 edition of *The Financial Development Report* of the World Economic Forum. Enforcement measures covered the enforcement of securities law and accounting standards, judicial independence and the protection of the rights of minority shareholders. The sample comprised more than 104,000 firm-year observations from 46 countries between 1998 and 2007. It found accounting earnings quality is greater in countries with stronger investor protection when they have adopted IFRS as well.

Improvements in 2005 to enforcement actions that accompanied the mandatory adoption of IFRS have also been the subject of study. For example, German firms subject to enforcement actions have tended to be less profitable, to have greater incentives to manage earnings and to have poorer governance arrangements (Ernstberger *et al.* 2010). Returns, trading volumes and stock market bid–ask spreads around the announcement of an infringement all indicated that the threat of being subject to an enforcement action can be an effective deterrent.

Second, with respect to education and training, there is a big role for the universities and also for accounting firms and professional bodies in equipping university graduates for a career in accounting, in developing well-trained teachers and researchers, and in catering for the professional development needs of practitioners, whether they are employed as preparers, users, auditors or regulators. A study of compliance with IFRS by companies in the Gulf region found that the degree of compliance improves with a country's willingness to invest in the professional development of those responsible for compliance monitoring and when enforcement actions are taken against those who do not comply (Al-Shammari *et al.* 2007).

I do not need to say anything much about the importance of the independent auditor in establishing the credibility and reliability of accounting reports, and in verifying the correctness of the statement that a company's financial statements comply with IFRS. Auditor independence is crucial, as is 'auditing the auditors'.

Finally, there is a big role for legal protection of the rights of outsiders relative to insiders, to put it simply, and for accounting standards to have the force of law.

6. What lies ahead?

As Niels Bohr is reported to have once said, 'Prediction is very difficult, especially if it's about the future.'[11] Nonetheless there are some things we can predict reasonably confidently about the future of international accounting standards.

There is a widely held view that entrenched differences in socio-economic conditions cause substantial differences in accounting practices across countries and these differences cannot be removed overnight. Even when IFRS are required by law, there will be 'many a slip 'twixt the cup and the lip', to quote an old English proverb. Moreover, nations have boundaries; and questions of sovereignty over the law and its derivatives, such as accounting standards, will not go away. Consequently, there will be differences in the degree of compliance for years to come and the potential benefits of a common set of accounting standards may never be realised in full.

There is another view. Sovereignty has its limits too. Countries will depend even more heavily on integrated markets and international trade for the well-being of their people. In time, the financial crisis of 2007–2008 may well be seen as little more than a painful hiccup,[12] with much of the initial concern about the usage of fair values eventually dissipating. (It is not at all obvious, of course, that the shortcomings of fair value accounting lay entirely at the door of the standard-setters: Laux and Leuz 2009.) Be that as it may, systemic financial risk and the stability of the world's financial markets will be a growing challenge and closer cooperation among nations will be needed. There are major benefits to speaking the same financial language in an increasingly integrated world and IFRS is part of that dialogue.

So, what of the future? Despite some troubling differences, for example, in relation to accounting for research and development activities, convergence of IFRS and US GAAP will continue. Eventually, it may be the case that the IASB will emerge as the leading standard-setting body, if only for geo-political reasons. In any event, there will be more IFRS adoptions, although some countries will continue to allow local departures. And there will be strong pressure to adopt the standards as soon as practicable after they are issued by the IASB, despite the 'cracking pace' sometimes set by standard-setters.

We researchers will always be challenged. We can always do with better theory; for example, can we predict better what will change in our economies as a result of the adoption of uniform financial accounting standards? We can always look for better models, better proxies and better estimators. There is a need for a sharper focus on differences across countries in the regulatory underpinnings of IFRS, in compliance monitoring, in enforcement, and in an area I have not discussed in any detail, namely, the importance of high quality corporate governance at both country and firm levels. That said, here is my list of directions that might be taken in future research into the benefits of adopting IFRS. They are in no particular order.

(a) *Range of benefits*. Many potential benefits from adopting IFRS are still to be researched. A few examples are the influence of IFRS on professional skills, education, labour market mobility, business opportunities for financial institutions and professional accounting firms, and better outcomes resulting from improved compliance monitoring and enforcement of IFRS. There are also major internal benefits to multinational companies with subsidiaries operating in different countries. The benefits to debt markets are also under-researched.[13]

(b) *Benefits vs. costs.* Many if not most capital markets-based studies – for example, studies of the relationship between stock price, earnings and book value of equity – reflect benefits net of costs. Other studies, for example, studies of analyst forecast accuracy, may reflect mainly the benefits. I expect the commercial and regulatory communities would be interested to know the principal drivers of the costs separately from the benefits, their economic importance and how they vary over time. I also expect some researchers will attempt to satisfy that interest.

(c) *Learning.* When faced by complicated change in the environment, people do not fully adjust their behaviour overnight. In the case of IFRS adoption, standard-setters, preparers and those who issue guidance to them, auditors, analysts and other users of financial statements, and regulators, can all take a significant amount of time to adapt. Moreover, IFRS are not static: new standards are being introduced and existing standards revised frequently. One implication is that early results may no longer hold. Another is that researchers, especially users of panel data, would do well to accommodate the standard-setters' 'shocks' to IFRS and subsequent learning, over time, by affected parties.

(d) *Differences between 'previous-GAAP' and IFRS.* It is reasonable to expect those who seek to demonstrate the benefits of adopting IFRS to condition their estimates on the difference IFRS make to the accounting numbers. More can be done to develop and calibrate models that explain these differences (e.g. by employing data available for the transition year), to use the models to predict the differences for sample companies in other years and to incorporate those differences in the analysis.

(e) *Variables of interest.* There is considerable scope for refining key variables. For instance, although there are exceptions (e.g. Katselas 2010), studies often use the 'as observed' bid–ask spread as if it were a reliable indicator of the cost of adverse selection. Another example is measures of the cost of capital, of which there is a daunting array. Additional examples are measures of 'timeliness' and 'accounting quality'. Much more can be done to refine these and other measures and to validate them in related settings, as a means of increasing our confidence in the correctness of the conclusions reached in studies that employ them.

(f) *Corporate governance.* Corporate governance at country and firm levels is believed to have an important influence on many aspects of the firm's behaviour such as its disclosure policy, transparency, financial policy, the quality of its accounting numbers, choice of auditor and so forth; and to influence the properties of analysts' forecasts, as well as its cost of capital (Brown *et al.* 2011). While the literature on corporate governance is also yet to overcome some major hurdles (for example, how to accommodate enforcement), we can expect a tighter integration between the two literatures in the years ahead and a move away from single equation models of the type found in so many accounting studies.

7. Conclusion

To conclude, let me return to the question in the title to this paper: 'What are the benefits?' The answer is clear in my own mind: 'The potential benefits to a country and its people from adopting international financial reporting standards are manifest in different ways. Collectively, they can be very large indeed although it takes more than just adopting IFRS to realise them.'

However, the evidence to support that view is far from complete.

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Notes

1. For simplicity I will not distinguish either between the IASB (International Accounting Standards Board) and its predecessor the IASC (International Accounting Standards Committee) or between IFRS (International Financial Reporting Standards collectively) and IAS (International Accounting Standards, the forerunner to IFRS).
2. One would expect the degree of credibility would depend on matters such as: the extent to which IFRS are adopted by a country as and when they are issued by the IASB; the quality of education and training of preparers, users, auditors and regulators; the extent and consistency of any guidance on IFRS available to preparers, auditors and other relevant parties; and the incentives of managers and controlling shareholders, auditors and regulators.
3. It occupied a mere 27 pages in Fra Luca Pacioli's 615-page *Summa de arithmetica, geometria, proportioni et proportionalita*, printed in 1494. (Accounting texts tend to be somewhat longer these days.)
4. Source: http://www.iasplus.com/country/useias.htm#totals (accessed 6 December 2010). [Editor's note: The full table shows that some of the jurisdictions classified as 'not permitted' are in the process of aligning domestic standards closely to IFRS.]
5. See http://www.cnc.min-financas.pt/Documentos/Press_release_reg_IAS.htm (accessed 14 January 2011).
6. Commonwealth of Australia (1997).
7. http://eng.kasb.or.kr/web/services/page/viewPage.action?page=eng/about/a_intro.html (accessed 17 January 2011).
8. See Pope and McLeay (2011) for a discussion of other papers not covered in this review.
9. Countries that mandated adoption of IFRS can be further sub-divided into those where early adoption was permitted (such as Germany) and those where it was not (such as Australia).
10. On the other hand, the earnings response coefficient (ERC) was found to be lower post-IFRS for a sample of Norwegian companies, which was attributed to the influence of volatility in earnings due to the use of fair value measurement under IFRS (Beisland and Knivsflå 2010). The capitalisation of intangibles was believed to have the opposite effect, that is, to raise the ERC because of better matching of costs and revenues.
11. Niels Bohr received the Nobel Prize for Physics in 1922. In fact the quote has been attributed to many others as well as Bohr and its origin is therefore in doubt. See http://physics.about.com/od/nielsbohr/tp/Niels-Bohr-Quotes.htm (accessed 17 January 2011).
12. See Howieson (2010) for an interesting analysis of the political pressures on standard-setters following the (global) financial crisis.
13. See Pope and McLeay (2011) for a discussion of four INTACCT papers that have considered the implications of IFRS for debt markets.

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Discussion

CHRISTOPH HÜTTEN*

Senior Vice President and Chief Accounting Officer, SAP AG

[The views expressed here are the personal views of the author]

I have been asked to present my personal views on the benefits of IFRS. Let me start by giving you an insight to the background for those views.

Being active in the area of accounting by providing the software functionalities that most large companies worldwide use to manage accounting, you can imagine that SAP is very keen on being at the forefront of new developments in accounting. SAP has two public listings, one in Germany and one in the USA. We have more than 10 years' experience with US GAAP because we started to apply it in 1998 and in 2007 we added IFRS. When we added IFRS we did not stop using US GAAP: for a number of years we applied both in parallel. It was only at the beginning of this year that we discontinued our US GAAP reporting.

You can see that I speak with some background of living in a US GAAP environment, more precisely an SEC-regulated US GAAP environment, and also I have some experience in living in an IFRS environment, again an SEC-regulated IFRS environment. Against that background I will start by saying that I feel a lot more comfortable with IFRS than I did in the old US GAAP times. My team opened quite a significant bottle of champagne at the beginning of 2010, when we said 'goodbye' to US GAAP.

I will mention three main reasons for preferring IFRS over US GAAP. First, IFRS are more predictable. Let me give you a typical scenario with US GAAP.

A member of my team is working on an accounting memo to find the response to an accounting issue or some transaction for which we need to identify an accounting procedure. The employee prepares an accounting memo, setting out what he or she believes is an appropriate application of the guidance in the US GAAP standards and any additional guidance in textbooks, databases and similar sources. The memo is completed and internally reviewed; we are happy with our views and confident that they are compliant with US GAAP. It goes to the external auditors for review; then the auditor comes back and tells us:

> Yes, you are right, you have taken an interesting position, and it is an understandable, logical, and convincing way of applying US GAAP. But unfortunately a member of the SEC staff at some point a few years back made the statement that they do not like this way of applying US GAAP.

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*Email: christoph.huetten@sap.com

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> They think it should be done in a different way; so we do not accept your accounting and you will have to change it.

It could have been a statement by an SEC representative in a speech or some SEC internal training material; and sometimes I fear it could even be an informal statement made at a relatively junior level of the SEC hierarchy.

This happens less frequently with IFRS. There appears to be a significantly higher level of acceptance that different people, when applying the same standards to the same transaction, come to different conclusions. This is important because it changes the way you discuss accounting issues with your auditors. You are more in the driver's seat when it comes to your accounting. And your employees are significantly more satisfied with their work. You can imagine that if an employee has prepared an accounting memo and is very happy with it, but finally the accounting needs to be entirely different, that is not very satisfying.

The second reason why I prefer IFRS over US GAAP is that I think IFRS are more convincing. We have less cases under IFRS where we come to the conclusion: 'This accounting does not make much sense, but this is what the accounting standards require.'

Let me give you an example: we frequently enter into transactions in which we sell to a customer the development of customised software. Under US GAAP the accounting for such transactions depends on whether developing software to the specifications of a customer is a service or rather the production of a software asset. If you conclude that it is production of a software asset, you get into the contract accounting literature; you apply percentage-of-completion accounting in most cases and you record a loss should the contract become onerous.

In contrast, if you decide it is a service, you carry out a relatively similar percentage-of-completion type of accounting, but you would not record a loss for an onerous contract. Why not? The SEC states that there is no explicit guidance on recording losses for onerous service contracts under US GAAP and that you can only record an onerous contract loss under US GAAP if there is specific guidance. Why is there no specific guidance? If you dig into the history of US GAAP revenue recognition guidance you will find that when the AICPA (American Institute of Certified Public Accountants) worked on the standard on contract accounting, in parallel there was work under way on a standard for revenue recognition from service arrangements. That's why they excluded service accounting from the scope of the contracting accounting standard. Unfortunately, they never finished the service accounting standard. That's why the onerous contract guidance in the contract accounting standard does not apply to services. Interestingly, the last draft of the service accounting standard included a requirement to record onerous contract losses.

At that point you have to go to your CEO and say: 'You know what? Depending on whether we say it is a service contract, or whether it is production of an asset, the accounting is different.' It is very, very difficult to say that to your CEO and everyone else who is not an accountant without them thinking 'these crazy accountants'. Again, this is something that happens less frequently under IFRS. We feel that IFRS are more consistent, as a body of accounting guidance, than US GAAP. Again, that makes it easier to convince people that the accounting reflects reality.

The third point is that IFRS accounting is more international. You may say that that is a normal thing, but it changes our behaviour. My company is significantly more involved in the standard-setting process of the IASB than it has ever been with the FASB. Why? First, we feel that the standards are made for true global use. We believe that the IFRS standards are more open for input on specifics of different jurisdictions than US GAAP, simply because the FASB produces standards for US companies not for global companies.

We have a German board member on the IASB, which makes conversation and communication much easier, knowing that someone on the board understands and oftentimes represents

German views. The IASB's due process is an open process with discussion papers, exposure drafts, roundtables and numerous other ways of collecting the input from the different stakeholder groups; and the obvious interest of the IASB is to make the standards work in most if not all countries. US GAAP is naturally more US focused and it is a national standard-setter producing national standards. Our German standards are focused on German national companies, so it is a normal thing.

If you look at these three reasons for being more satisfied with IFRS than with US GAAP, I should add a caveat. There are some people who say that IFRS are not really more principles-based than US GAAP and they say the only real difference is that US GAAP are older. I do not necessarily agree with this, but this statement reflects a risk. If regulators and auditors do not continue to protect the principles-based approach of IFRS, we could simply lose it.

Why do I mention regulators and auditors here? Regulators and auditors are those who have a history of adding an additional layer of guidance to a body of accounting standards. We all need to understand that the principles-based approach to accounting under IFRS is a precious asset and an asset that needs maintenance and protection. If we cannot protect the principles-based approach, most of the reasons as to why I am happy with IFRS simply vanish.

I hope that we manage this protection of the principles-based approach. The SEC's approach to reviewing IFRS-based filings has so far indicated that the SEC understands that IFRS are different from US GAAP. But some people say we will only be able to tell whether this approach continues in the long run when US companies report under IFRS.

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IFRS monopoly: the Pied Piper of financial reporting

SHYAM SUNDER*

James L. Frank Professor of Accounting, Economics, and Finance, Yale School of Management, Box 208200, New Haven, CT 06520-8200, USA

The links among better financial reporting, better markets, and better economy and society are arguable, but they remain poorly understood. The addition of IFRS to the set of available alternatives may improve these linkages, but granting them monopoly status does not. Claims that the universal adoption of IFRS as a single set of high-quality principles-based standards will yield global comparability are overblown. Accounting standards operate less like a uniform system of weights and measures and more like a single currency, in that both play multiple roles in modern economies. An IFRS monopoly is evolutionarily disadvantageous in that it eliminates the opportunity to compare alternative practices and learn from them. It also disallows the tailoring of financial reporting to local variations in economic, business, commercial, legal, auditing, regulatory and governance conditions across the globe. Empirical studies of statistical covariation across financial reports produced by IFRS have yielded mixed results and, in any case, provide little insight as to the merits of granting IFRS a world monopoly. The vociferous campaign in support of IFRS monopoly is reminiscent of the 1990s campaign in support of the now-discredited 'Washington Consensus'. Then, as now, it was a case of promoting theoretical benefits while obscuring potential costs and risks. This is the familiar story of the Pied Piper leading his trusting victims to their doom.

Keywords: Accounting; International Financial Reporting Standards; IFRS; monopoly; risks

1. Introduction

How do we create better markets? The question can be narrowed to refer to the creation of better financial reporting, or expanded to envision the creation of a better economy, or even a better society. Each specification of the scope of the question raises its own clarifying queries. What is better financial reporting? How do we find out which system of reporting is better, and for whom? Shifting attention from these difficult-to-answer questions simply gives rise to others. What do we mean by better markets? What is the linkage between financial reporting and markets? Are there characteristics that make for better financial reporting but do not necessarily

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*Email: shyam.sunder@yale.edu

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create better markets? We can escape these questions by shifting attention, yet again, from markets to the economy (or society), where the objective of increasing prosperity might be easier to agree on. But even here, troublesome questions arise about the distribution of wealth and about the causal linkage between the choice of financial reporting and the prosperity of society. We, as accountants, are naturally disposed to believe in the existence of such a linkage, and many others believe that some yet-to-be-specified system of financial reporting will generate greater wealth, and perhaps even distribute it more justly among the members of society. There is little evidence to support or deny such beliefs; perhaps the burden of proof lies with those who hold them. The desire for and the pursuit of prosperity is understandable; the hope that International Financial Reporting Standards (IFRS) – especially IFRS as a monopoly – will help us succeed in this endeavour is not. Let us explore why.

It is useful to subdivide the task of addressing the downside of IFRS into two modes of its adoption – one as the single standard within and across various legal jurisdictions in the world, and the other as a candidate available, along with other national or international competing alternatives, for use by companies in jurisdictions which may allow such a choice. I welcome and support the development of IFRS as a competing alternative that national authorities may make available to the reporting entities under their jurisdictions (registrants). However, 'IFRS-as-an-alternative' has not been the direction in which the International Accounting Standards Board (IASB) and its advocates have targeted their efforts. Their focus has been to persuade national regulators to adopt IFRS as a single set of standards to be enforced on all registrants through the enactment of local and regional laws and regulations. A large part of my remarks are, therefore, directed to the 'IFRS-as-monopoly' proposal.

In the popular imagination, accountants are often thought of as the ultimate professionals, but also as unimaginative robots. Popularity, imagination and creativity are characteristics that take on unconventional and largely negative connotations when attributed to accountants. As professionals, they are expected to stand firm in their judgments when the winds of adverse opinion buffet others around them; if they cater to popular opinion, they are seen as panderers. Imagination and creativity, which enable most of us to discover solutions to our intractable problems, in accountants are perceived as the crafty, opportunistic manipulation of financial reports. Accountants are simply supposed to be different – vigilant guardians whose job is to save us from our own weaker selves. They may sometimes be permitted a modest degree of creativity in devising means of persuasion, but they are rarely expected to be imaginative, and certainly are not supposed to seek popularity.

Over the past decade, the vociferous and well-financed campaign to manufacture and market IFRS as a single set of high-quality principles-based standards for use by all seems to have been designed to exploit this aspect of the image of accounting and accountants. I would like to explain why, given the nature of accountants' role, the objectives claimed for IFRS are unlikely to be met. To the extent they manage to succeed, I shall explain why and how the consequences will do more harm than good with respect to the efficient functioning of organisations and markets. Much has been made of the presumed empirical evidence that supports the virtues claimed for IFRS over the alternatives. A review reveals the evidence to be mixed at best, however, and it is often irrelevant to policy on IFRS.

Many critiques of IFRS have focused on specific accounting standards issued by the IASB. This paper, instead, analyses the consequences of the process through which IFRS are created and may be implemented as a monopolistic set of standards for the world. Since the analogy of uniform weights and measures has been a major part of the argument to promote IFRS monopoly, I examine its problems, and suggest a uniform currency, for example, the euro, as a better analogy. I use the economics of standardisation to examine which features of financial reporting may benefit from IFRS. I examine nine bases for deciding for or against IFRS, and find little support for adoption of IFRS as a monopoly. I also examine 11 challenges that standard-setters face. Instead of helping address these challenges, imposition of IFRS may only render them more intractable.

2. Weights-and-measures analogy

The specification and enforcement of a uniform scheme of weights and measures is one of the earliest functions of even primitive governments in human history. Not surprisingly, the analogy of IFRS as a scheme of uniform weights and measures in the domain of financial reporting for the whole world has been used to sell the idea to lay audiences as well as professionals. If the universal use of the metric system helps improve efficiency, so will the universal adoption of IFRS, or so the argument goes.

The problem is that IFRS have less in common with the metric system, and more in common with the euro. Once the significant costs of transition to a single system of weights and measures have been incurred, there is little doubt that a uniform system yields continuing efficiencies which may justify the capital cost of its adoption. The scheme of weights and measures, once chosen, implemented and enforced, is invariant with respect to the decisions and choices made by parties to the transactions.

Government-issued fiat money, on the other hand, is used not only for facilitating exchange, but also for managing such aspects of the macroeconomy as credit, income, inflation, employment, trade and growth. Whether the advantages accruing to a multitude of polities of using a single currency – not having to visit currency exchanges at airports, for example – outweigh the disadvantages of losing control of money as an instrument of fiscal, monetary and trade policy in all participating countries is a more complex question. It cannot be addressed by simply claiming that a single currency is necessarily preferable to local currencies as a single standard of value across Greece, Portugal and France. And yet, this is what the weights-and-measures analogy implies, and what the advocates of universal adoption of IFRS seek to do.

Corporate financial reporting has functions that extend well beyond those analogous to the weights-and-measures situation, such as enabling income comparisons, measuring profitability or determining the value of corporations.[1] As history shows, national governments use corporate financial reporting as instruments of policy on taxation, economic stimulus, compensation and the regulation of financial systems. Whether governments should do so is not the issue on the table at present, however. The question of whether a single currency or a single set of accounting standards should be used in all countries of the European Union (or the world, for that matter) cannot be settled by endlessly repeating the 'comparable weights-and-measures' exhortation; such decisions call for a more careful analysis of the consequences.

3. Which things/practices are best standardised; which are not?

Standards have played a critical role in the development of human civilisation by promoting quality or coordination, or both (Sunder 1988, Jamal *et al.* 2003, 2005, Jamal and Sunder 2007a, 2007b). Absent standardisation, a great deal of our prosperity and comfort would not be achievable. For example, quality and coordination standards for food and hygiene allow us to safely eat food prepared by strangers, and standards for electric current and wireless protocols allow us to recharge our cell phones and communicate with others around the globe.

The question is not whether standards in general are good or bad for us. Instead, we need to reflect on (1) which aspects of our lives could benefit from either quality or coordination standards; and (2) in those cases where standards can be beneficial, what is an efficient process for identifying and developing effective and desirable standards.

We benefit from standards when we are reasonably confident that a solution or design has been found which is so efficient that it is unlikely to be worth the effort to continue a further search for even better solutions; or alternatively, when further search for better solutions can continue, largely unhindered, even as we standardise what we believe to be an efficient interim solution.

To what extent, and in which respects, can we benefit from standardisation of financial reporting? Standards to require disclosure of specific items are a form of quality standards for financial reports. On the other hand, standards requiring financial reports to follow specific formatting are a form of coordination standards, because their value arises from a commonality of usage, similar to rules requiring us to drive on one or the other side of the road (see Baxter 1953). However, measurement standards, which constitute the vast majority of what the IASB and other boards require, combine elements of quality as well as coordination, in varying degrees.

Whether meant to improve quality or coordination, there is always a possibility that the standards chosen could be either good or bad, and therefore may bring benefits or harm. The standardisation of weights and measures has brought much prosperity to society; the standardisation of the QWERTY keyboard, in spite of its early efficiency (in slowing down typists so the type bars on mechanical typewriters would not jam), continues because of the investment of time in developing a traditional typist's skills, in spite of the demonstrated superiority of alternatives such as the Dvorak keyboard. Inertia, too, plays a role in its continued usage. It is therefore important that, in financial reporting also, we take care to select those aspects of financial reporting that would best profit from standardisation, and devise a reliable process to choose the standards that are put into practice.

In a world dominated by electronic data processing, the establishment of formatting standards for financial reporting is necessary, but the specific choice of the format is largely a technical matter that need not be of much concern in our present discussion. Further, with changes in technology, these standards can be allowed to co-evolve without much active intervention by accounting regulators.

4. Bases for deciding for or against IFRS

On what bases, then, can we assess whether an IFRS monopoly will contribute to better markets and better economy? These bases should include a consideration of their contribution to the prosperity and wealth of society, their inclusion of relevant information from all parts of the economy, their stability over time, their adaptability to changes in economic environment, their robustness against manipulation and their resistance to capture by narrow interest groups. On the flip side, covariation between accounting and stock market data, the promotion of IFRS monopoly by firms and groups whose interests they may serve, and the number of jurisdictions in which regulators may claim to have adopted IFRS in expectation of attracting investment capital from abroad or loans from the World Bank, should not be the bases for deciding on IFRS. Let us take each of these considerations in turn.

4.1. *Contribution to the prosperity and wealth of society*

Contribution to the welfare of society is the ultimate criterion for judging the adoption of a public policy proposal. However, it is also the most difficult to apply. On occasion, we may be able to find reasonable arguments or evidence on costs and benefits, but a comprehensive analysis of specific, identifiable cost-and-benefit consequences is out of our reach in practical terms.

Perhaps the best we can do is to draw parallels between the processes used in financial reporting and in other comparable domains. This I shall do in a later section.

4.2. *Inclusion of relevant information from all parts of the economy*

Decisions on standards, whether they relate to the choice of (1) specific standards, (2) institutional structure and process of writing standards, or (3) the scope of standardisation, affect most, if not all, members of society (Sunder 1997, Chapter 11). The information needed for making such choices is dispersed among a very large number of people and institutions. For the chosen policy to have desirable properties, that policy is best determined on the basis of as much of this information as can be gathered and incorporated into it. Organisations such as the IASB, staffed with a small number of subject matter experts, do not know important pieces of information, such as constituent preferences, available alternatives and new strategies that might be devised in response to the chosen standards. Attempts by standards boards to elicit constituent preferences may garner biased responses from the better-organised parts of their audiences. Even those audiences may not know which of the proposals on the table would best serve their interests if they lack prior experience of them. Despite following due process, standards boards can make only an approximate assessment of the consequences of proposals, unless those proposals have already been put in practice. To include as much information as possible on decisions about standards, therefore, it is better to select from options for which experience from the field is already established. Unfortunately, neither the IASB nor the Financial Accounting Standards Board (FASB) has imposed this constraint on their choices in the past, often generating unanticipated consequences after the implementation of their innovative proposals.

4.3. *Stability over time*

Like other bodies of law, rules and regulations, financial reporting standards also change the operating environment (pay-offs, constraints, strategy sets, players) of the participants. Therefore, as a general rule, we should expect various participants to re-evaluate their strategies, and potentially alter their behaviour, based on their post-adoption environment. Since participants constitute an important aspect of the broader environment, changes in behaviour by some potentially require changes in the behaviour of others. Over time, this action–reaction dyad may or may not settle down into a stable pattern of behaviour. The point is that each change in financial reporting standards is a source of new strategic uncertainty, and therefore requires that the participants make appropriate adjustments to each change. To the extent that stability and the reduction of uncertainty are goals of the standard-setters, those authorities should be biased in favour of a stable set of standards. This would mean that they would introduce new standards only after they have considered the additional ‘cost’ of creating new turbulence in the financial reporting system by introducing changes.

If IFRS are promulgated by a permanent board with a permanent establishment, there is a natural inclination in the organisation to keep a full docket, and to publish new standards as evidence of its productivity and value for the resources spent on it. While some new standards may be well justified, excessive standard-setting that continually introduces new perturbations in the reporting environment is an inevitable consequence of permanent institutions like the IASB or the FASB (Sunder 1981, 1997). In deciding on IFRS-as-monopoly, this tendency of the standard-writing institution should be kept in mind. IFRS have been promoted on the grounds that they are principles based, because the IFRS rulebook comprises a mere 2700 pages, as compared to the 15,000-plus pages of the US Financial Accounting Standards (FAS). Is it not possible that the IFRS rulebook is so much thinner only because the IASB started later and had fewer resources? Given time and staff, it will likely catch up with the FAS rulebook. After all, similar structures can be expected to yield similar outcomes. In any case, even 2700 pages are a lot of 'principles' for any learned profession (Sunder 2009).

4.4. *Adaptability to changes in economic environment*

The environment of financial reporting is in flux, due to myriad events in the economy, markets and organisations. Even an organisation which is fully aware of the need for stability must respond to some changes in the environment by issuing new standards, or by modifying the existing ones. The IASB, like the FASB and many other national boards, is designed to respond to calls for action from regulators and constituents. However, the IASB has no advantage over other boards with respect to responsiveness. If anything, its ability to respond is attenuated by its global composition and the necessity that it cover the divergent conditions prevailing in various parts of the world. It cannot adapt its standards to changes in a constrained or limited portion of the global economic environment.

4.5. *Robustness against manipulation*

There are several ways that threats to manipulate the IFRS can arise. The undue influence of a single country in the development of standards can be controlled by constituting the IASB with members from diverse economies of the world. However, it is possible that most of these countries may choose a professional accountant to represent them, thus creating an aggregate imbalance among various constituencies in the Board. A third kind of manipulative threat arises in the form of existential challenges to the organisation itself by powerful lobbies and politicians. A corporate body, especially one endowed with monopoly powers, is more vulnerable to such challenges. In comparison, when multiple standard-setting bodies coexist with one another and with social norms, their power to hold their ground against political and interest group pressures increases. In such circumstances, these bodies can tell their challengers to use the alternatives available from other sources.

4.6. *Resistance to capture by narrow interest groups*

In his seminal work, Stigler (1971) pointed out the ever-present threat of regulators being captured by the parties they seek to regulate. Capturing parties have to have an interest, power and concentration to succeed. Professional accountants as well as business corporations, especially in the financial industry, both seem to satisfy these conditions. The dependence of the IASB on these groups for funding its operations increases the risk of capture. In recent years, taxation of public corporations has been proposed (and implemented, in case of the FASB) as a solution to this risk. Since taxation deprives the monopoly standard-setters of information feedback, I suggest that a better solution is to gather royalties from reporting entities that may choose to report on the basis of a competing set of standards (Sunder 2010). Any tendency of corporate managers to choose 'cheap' standards for their reporting would be counterbalanced by the vigilance of the investment community, which can use such management behaviour as a signal about managers' competence and confidence (see Dye 1985, Levine 1996). Further, regulators who choose to permit certain sets of standards to compete in their jurisdiction can sanction flagrant violators of the threshold of acceptability in their society.

The above six factors have a reasonable claim to be considered in assessing whether or not to adopt IFRS-as-monopoly. There are also several other considerations often mentioned in the literature as bases for this assessment. The following paragraphs examine these arguments.

4.7. *Correlation between accounting and stock market data*

A large amount of research effort on the objective assessment of IFRS has been devoted to estimating the statistical relationships between stock prices on the one hand, and accounting data generated under IFRS and other accounting regimes on the other. A higher correlation between stock prices and the accounting data generated by IFRS as compared to the data generated by, say, the US FAS would supply objective evidence that the stock markets find the IFRS more informative than the FAS. According to this well-meaning argument, since neither the data nor the statistical estimates are influenced by the identity of the researcher, such analyses provide an objective basis for assessing alternative standard sets.

This argument has two weaknesses. First, it assumes that the stock market is the critical if not the sole criterion for selecting a financial reporting regime. If, as mentioned above, the choice of financial reporting is to be based on enhancing the welfare and prosperity of society, the stock market is not sufficient for this purpose, unless the welfare of all others were invariant with respect to the choice. There are other markets, including bond markets, markets for managerial and other labour, and markets for various goods and services that constitute the economy. Financial reporting plays various but important roles in them all. An argument that justifies choosing an accounting regime solely on the basis of a better functioning stock market is not defensible.

Even if one were to concede to the stock market complete sovereignty over all matters of financial reporting, the statistical method does not deliver the promised goods. Consider a simple illustration. Attempts to produce policy-relevant empirical research often take the following form: let us posit Financial Reporting System A as the status quo that generates Price System A through a causal impact of accounting on markets:

$$\text{Financial Reporting System A} \rightarrow \text{Price System A.} \tag{1}$$

Since it is the status quo, the policymakers (and the researchers who may be engaged to assist them) have available to them data on financial reports as well as the stock market (prices, volume, etc.) generated under System A. They can use research tools to estimate the statistical relationship, such as a correlation between the accounting and the market data. Let us denote this estimated statistical relationship by R(A). Note that the estimated statistical relationship has no directionality:

$$\text{Financial Reporting System A} \overset{\text{R(A)}}{\longleftrightarrow} \text{Price System A.} \tag{2}$$

Now suppose that the policymaker considers an alternative financial reporting system B, which will change the status quo to a different reporting standard. Again, under the maintained hypothesis of causal impact of the changes in financial reporting on the stock market, we admit to the possibility that it could generate a different Price System B:

$$\text{Financial Reporting System B} \rightarrow \text{Price System B.} \tag{3}$$

Note that if we do not even admit to the possibility of a change in financial reporting causing a change in the price system, we would reject, *ex ante*, any relevance financial reporting might have for stock markets. Before changing the financial reporting from its status quo, the policymaker may want to know its consequences for stock prices. Let us suppose for now (we shall relax this assumption shortly) that we are able to observe both the financial reporting as well as stock market data under System B, and use this data to estimate the statistical relationship, denoted by R(B), between financing reporting and the stock market under the proposed system:

$$\text{Financial Reporting System B} \overset{R(B)}{\longleftrightarrow} \text{Price System B.} \tag{4}$$

The first question we ask is: What inferences about the relative desirability of systems A and B can we draw on the basis of comparing R(A) and R(B)? Suppose R(.) is a linear correlation or the coefficient of determination of a linear regression, or some such measure of statistical proximity of the financial reports and the resultant stock prices. It is tempting, at first glance, to say that a financial reporting system that has greater statistical proximity to the corresponding stock prices should be preferred. Indeed, that is the so-called 'information content' criterion which has been, and continues to be, used extensively in the accounting literature of the past four decades.

However, if the desirability of a financial reporting system were to be judged by the statistical proximity of the relevant accounting and market data, it is trivially simple to achieve the financial reporting *nirvana.* All one has to do is to use the market data to prepare the financial reports. For example, if the change in market capitalisation over the year were reported as the income of the firm for that year, accounting and market data would be not merely proximate statistically, but will be identical. Simply feeding the market data back to the markets through financial reports would be silly, because such reports will be worthless in providing any information to the market. In such a world, having turned financial reporting *for* the markets on its head, we shall have financial reporting *from* the markets. Absent other sources of information, prices in an economy with 'market-based' reports would be indeterminate and therefore inefficient. Consequently, one cannot usefully assess the relative desirability of alternative financial reporting systems on the basis of the statistical correlation between the respective sets of accounting and market data.[2]

The above analysis is based on the assumption that the data from System B, the alternative to the status quo System A, are available to estimate R(B). For many accounting policy problems, it is possible to estimate hypothetical accounting numbers that would be reported under the policy alternative, provided that the real decisions of the managers (e.g. research and development, investment, etc.) would not be influenced by a switch to the alternative reporting regime, and that sufficient information on the parameters of the firm were available to the analyst. However, stock market data under the alternative regime cannot be available before it is implemented, nor can it be constructed through either contemplation or analysis. What can one do to estimate R(B) in (4) above, assuming that would be useful in some way?

This additional difficulty has led many analysts to simply replace Price System B by Price System A, and to estimate the statistical proximity R*(B) of accounting data B with market data A, and then to draw an inference about the desirability of financial reporting systems on the basis of comparing R(A) with R*(B), instead of R(B) which is unavailable, as shown below:

$$\begin{tikzcd}
\text{Financial Reporting System A} \arrow[r, leftrightarrow, "R(A)"] & \text{Price System A} \\
\text{Financial Reporting System B} \arrow[ur, leftrightarrow, dashed, "R^*(B)"'] & \text{Price System B.}
\end{tikzcd}$$

Doubtful as it is to assess the relative desirability of A vs. B on the basis of comparing R(A) and R(B), doing so on the basis of comparing R(A) to R*(B) is even more difficult to defend. What is the meaning and significance of R*(B), and what can its comparison to R(A) possibly tell the policymakers about the relative merits of these reporting regimes? One could defend the use of R*(B) on the basis of the assumption that it is reasonable to replace the unobservable Price System B by Price System A, because the contemplated change in financial reporting regime has no consequences for the price system. But such an assumption strikes at the very roots of the whole approach: why compare the relationship between accounting and stock price data if the former have no effect on the later.

There have been many studies that evaluate IFRS on the basis of this method of analysis. The results have been mixed (see the full working paper version noted in the acknowledgments for a summary of these and other empirical studies). Unfortunately, the empirical studies of covariation of financial reporting and stock price data are essentially irrelevant to the problem of whether companies, countries or the whole world should choose IFRS monopoly for financial reporting.

4.8. *Promotion of IFRS by various firms and groups*

The past decade-and-a-half has seen a concerted effort to promote and market IFRS to investors, regulators, companies, teachers and the general public in many parts of the world. IASB has an obvious interest in promoting acceptance of IFRS. Four major audit firms and their international networks appear to have made a policy decision to promote a monopoly status for IFRS, and have used their considerable resources for this purpose (Harris 2008). These firms repeat verbatim the language used by the IASB (e.g. a single set of high-quality, principles-based financial reporting standards to promote comparability across the world) without giving specific reasons why they have taken this position in the policy domain. It has been suggested that the large audit firms see international standards as a strategy to take a larger share of the audit market from small and local firms. However, there has been so little public discourse on these matters that it is difficult to know for sure.

4.9. *One hundred and twenty countries can't be wrong*

Public officials in many countries, eager to attract foreign investment capital for their development, have been led to believe that the adoption of IFRS will help them. Consequently, many have or claim to have adopted IFRS. Given the difficulties of translation, and implementation of IFRS in variable local environments, whether the claims of its adoption can be meaningfully translated into more comparable financial reports across nations and continents remains to be seen. As in other aspects of our lives, following the crowd is a questionable approach to deciding whether or not to adopt IFRS.

5. Challenges of setting standards

5.1. *How do we learn what is better?*

What are our sources of learning, and means of discovering, what good financial reporting is, in the sense of making markets better or generating more wealth and prosperity for society? First, there are some a priori beliefs that we carry from our understanding of the broader world in relevant contexts and from past experience. For example, these may include truthfulness (representative faithfulness), relevance, timeliness, unbiasedness or the like. These are regarded as maintained hypotheses in most analyses, because subjecting them to further questioning does not appear to be a fruitful endeavour. There is no reason to think that the a priori assumptions underlying IFRS are any better or worse than those underlying alternative standards. In any case, there is no evidence to the contrary.

A second approach to learning is the systematic analysis of the problem on the basis of known first principles. For example, on the basis of known laws of physics, an engineer may be able to form a reasonable assessment of how a newly designed electrical circuit will function. On the basis of known laws of supply and demand, and the estimated parameters of the problem, a businessman may form a reasonable assessment of the product price that will yield maximum profits for him. In financial reporting, we do not seem to have identified yet such first principles on which we have broad agreement. Without such principles, our ability to form a reasonable assessment of the consequences of any changes we engineer in the system of financial reporting is severely circumscribed. I am not aware of any current work to take us in that direction. Neither the IASB nor other standard-setting organisations in various parts of the world have any advantage over one another in forming better standards for better markets.

A third approach to learning is to conduct systematic experiments in controlled environments to examine the properties of alternative financial reporting regimes. In social domains where such experiments can have major unanticipated consequences for the participants, there is understandable reluctance to conduct them. For these reasons, when such experiments are undertaken, they allow voluntary participation. Since the decision to participate may itself differentiate the participants from non-participants in important and relevant respects, the usefulness of such experiments is limited. On occasion, historical accidents may create situations that can be regarded, *ex post*, as experiments, and data gathered from them analysed to gain useful insights. However, such events are too rare to serve as a reliable basis of learning about financial reporting alternatives.

These difficulties lead us to conduct small-scale laboratory experiments on students or professionals, either by paying cash to them or by relying on the assumption that their behaviour will remain unaffected by the hypothetical nature of the experimental tasks they are asked to perform. Further, institutional interactions and their complexities in financial reporting are difficult to capture in hypothetical laboratory tasks. Understanding and choosing institutional relationships require experience and a time-scale much longer than what is typically available, and can be available, in experimental settings. Neither the IASB nor the other regulators have relied on experimental method to learn about the potential consequences of the financial reporting interventions they contemplate.

A fourth, and most commonly used, approach to systematic learning is to analyse observations from the past about changes over time in a given place, or variations across places at a given time, or both. We may, for example, assess from past data how changes over the years in accounting for bank loans gone bad in the USA may be systematically related to the observable behaviour of bankers, borrowers and investors. Or we may enquire into how the choice of financial reporting standards allowed in Switzerland might have influenced their markets, as compared to most other domains where such choice was not permitted. Rooted in actual facts of the past, this approach to documented learning has obvious appeal. Unfortunately it, too, has severe limitations. The observable behaviour available for analysis leaves out critical unobservable variables, such as expectations and private information on which the behaviour of various agents is dependent. Equally important, statistical analysis of past data allows us to establish covariation but rarely causation. Policymaking requires the latter and has little use for the former. Third, any data from the field are susceptible to self-selection and endogeneity.

What would the introduction of a world monopoly of IFRS (even if it were confined to the major economies) do to our ability to become better informed about potential improvements in financial reporting and create better markets? Of the four methods of learning mentioned above, the IFRS-as-monopoly would have no advantage over its alternatives in the first three. With respect to the fourth approach, the monopoly would make it virtually impossible to make cross-sectional comparisons of alternative accounting regimes and of their consequences on the basis of field data, because no such data would be available in a universal IFRS regime.

5.2. *Standards and alternatives*

Written standards enforced by authority are an important but not the only instrument for improving quality and coordination in society. Order in many if not most aspects of our lives is attained by shared expectations, social norms and exchange (Sunder 2005a, 2005b). For example, beyond hygiene and safety, there are few written standards for food served in restaurants. Yet, these establishments create, maintain and deliver myriad preparations to satisfy the diverse tastes of their customers on a consistent basis. The same is true of colleges, cars and clothing. If the arguments offered to promote IFRS-as-monopoly are to be believed, the world would be a better place if a single body specified a uniform cuisine, cars, clothes and curriculum, as well as uniform laws and a single language for everyone in the world.

5.3. *Principles vs. uniformity*

Promoters of the IFRS endlessly repeat that a 'single set of principles-based standards ... promote comparability'. In spite of its apparent appeal, a fundamental contradiction is hidden within this claim. Any body of principles, which are more general and less specific than rules, must also permit greater room for individual judgment in their application. Individual judgment means diversity of interpretation, and consequently less uniformity and comparability. The problem with the rhetoric used to market the IFRS was pointed out early: 'Common global standards, if read to mean identical, is an illusory and unobtainable goal' (Breeden, former chair of the US Securities and Exchange Commission) and 'a uniform classification of transactions that occur in diverse environments is logically impossible' (Fearnley and Sunder 2005, 2007a, 2007b). Since no two transactions or events are identical in all respects, does uniformity mean any two transactions with *any similarity* must be treated alike, or that any two transactions with *any dissimilarity* must be treated differently (Sunder 1984, 1997)? The two answers to this question yield radically different solutions. This problem and the foundational ambiguity of the concept of uniformity were ignored, and have inevitably arisen in empirical studies of application of IFRS in practice (Rezaee *et al.* 2010).

5.4. *Language and translation*

The rhetoric of IFRS often draws on the metaphor of accounting as the language of business and cites the benefits of using a single accounting language across the world. The presumption is that the single precise meaning of accounting terms, specified by a central authority and enforced under the law, will improve communication between reporting entities and their constituents. However,

> Consider the failed utopian vision of Esperanto. It was proposed in 1887 as an artificially constructed global language to eliminate the difficulties of communicating across the world. Languages are alive with words with their multiple and ambiguous meanings continually entering, evolving and becoming obsolete. This development is bottom-up, driven by users of language, not top-down, controlled by lexicographers. Esperanto failed because its promoters ignored the fundamental nature of language in their search for uniformity. (Fearnley and Sunder 2006, p. 26)

Ambiguity of meaning is necessary for communication and its evolution (Kitchen 1954). If the meaning of 'shirt' were to cover every detail of the garment, either all shirts will have to be identical or every shirt would need a different word to describe it.

Since IFRS documents are written in English, they must be translated into the various natural languages of the world. Each natural language has vocabulary and character of its own, and it is not possible to find words and phrases to create the exact translation of the English originals. Anecdotal stories of how Turkish or Japanese translations deviate from the intent of the original are heard but difficult to evaluate in the absence of unanimity behind bilingual authoritative voices. How shall one know if the financial reports putatively prepared under IFRS are indeed comparable across borders, except to rely on the assurances offered by those who claim to know those languages?

5.5. *Discovery and evolution*

Financial reporting is a particularly complex example of a social system in which a large number of individuals and groups, each with their own unique interests, information and opportunity sets, act and interact dynamically. Past decades of efforts at shaping the financial reporting regime through top-down regulation suggest that our ability to design financial reporting standards to attain a given set of outcomes, or to predict the response of this complex system when a given set of standards are promulgated, is limited at best. Yet, financial reporting does require some rules. In broader socio-economic contexts, Hayek (1988) called it our fatal conceit: 'Since people had been able to generate some system of rules coordinating their efforts, they must also be able to design an even better and gratifying system' (p. 7). But social systems have little to do with design. They are the result of evolution through trial and error and selection. What can we do?

An alternative to the top-down design approach, which has dominated the accounting discourse of the recent decades, is to place greater reliance on the bottom-up evolution of financial reporting practices. Allowing deliberate room for experimentation will facilitate experience with newer methods, and help us discover some that might work better by satisfying various constituents (Dye and Sunder 2001). This would be the social equivalent of Darwinian evolution in biology and the accounting equivalent of Herbert Spencer's social evolution. A process that allows and encourages the discovery and evolution of better financial reporting in the context of experimentation in real markets admittedly will be slow, but it has a better chance of improving the regime. Granting a monopoly to the IASB, or to any other corporate body, will take us in the opposite direction.

5.6. *Fit in the legal, economic and business system*

The uniformity and comparability argument in favour of IFRS ignores the interrelationships among the economic, business and legal institutions of society and the corresponding regimes of financial reporting and auditing. One cannot impose an externally devised set of financial reporting standards on economies with diverse legal, corporate governance, and auditing and commercial codes, and expect comparable results simply because they share a set of financial reporting standards (see Ball 1995, 2006, Sunder 2002). After years of denial by the promoters of IFRS, recent announcements and studies are beginning to reveal that the application of IFRS across national jurisdictions has not been, and is unlikely to be, uniform, nor is it likely to generate comparability (see, for example, KPMG 2006, 2007, Lang *et al.* 2006, Leuz 2006, E&Y 2007a, 2007b, Smith 2008).

5.7. *Criteria for choice of standards*

Top-down standard-setting needs criteria for deciding which financial reporting practices are better. As mentioned earlier, representational faithfulness, neutrality, timeliness, relevance and reliability are among the characteristics that might provide answers to this problem. However, it is rare to see either the IASB or the FASB use such criteria to defend their specific proposals over alternatives on a consistent basis. In the academic literature, lowering the cost of equity capital often appears as a criterion for improving financial reporting. However, the cost of equity capital is simply a price at which capital is rented from one party to the other. In any market transaction, what is cost to one side is revenue to the other. Would the world be a better place if the price of capital, or potatoes for that matter, were lowered, *ceteris paribus*? Consumers could buy more for the same amount of money, but the farmers will get less for the same truck load of their produce. Without placing some additional conditions, how can one say that it is socially desirable to lower the price of potatoes, or capital? I have not yet seen an answer to this simple question.

Fortunately, letting the financial reporting practice evolve through experimentation and experience under light and benign regulatory oversight does not require us to choose such criteria. Instead, the supervisor can move to a higher level criterion such as investment, growth and gross national product as a measure of how well the economy is doing under the regime. If, looking across the borders, the supervisor finds other economies are doing better under an alternative regime, he may nudge the locals to experiment with imitation. Indeed, the appeal during the decades of the mid-twentieth century, and the recent criticisms of the US system of financial reporting, appear to be linked to the performance of the US economy.

5.8. *Fractal structure of reality*

In his seminal work Benoit Mandelbrot (1977) proposed 'fractal geometry' as the label for mathematical structures that are infinitely detailed. There is no limit to how far you can zoom in and find additional features without ever seeing a repetition. He went on to apply his mathematics to physical phenomena such as the shapes of mountains, coastlines, snowflakes, trees, etc., and to stock markets. Socio-economic phenomena, too, have no natural limit in their detail. This is also applicable to financial reporting and the standards written to govern them.

There is no natural limit to the amount of detail in standards and rules. It is always possible to ask for further clarification, on the grounds that the rule is not clear enough. Rulebooks get thicker over time through this process of endless demands for clarification, and not, as the promoters of IFRS might have us believe, because their writers do not believe in principles. The reason the IFRS rulebook is thinner than the FAS is not because one believes in principles and the other in rules; it is simply that IASB has not been around for as long as the FASB has been. Their processes are similar, and so will be the nature of their rules.

5.9. *Role of judgment and social norms in professions*

Like bicycle training wheels, spoon-feeding and unemployment benefits, written standards of financial reporting can help us to learn, develop our own ability and judgment, and become self-sufficient, if they are set aside in a timely fashion. Hang on to them for too long, and they become permanent props and developmental barriers. When an auditor calls a standards board for clarification, it is rarely because of the failure of his/her judgment; it is more likely a failure of nerve to exercise that judgment in the face of pressure from the client. It is not easy for a corporate body, whose sole function is to issue rules, to say no to such requests, in spite of the fact that issuing clarifications and so-called guidance relieves the auditors of the opportunity – indeed obligation – to exercise his or her judgment on the way to becoming a professional cripple, dependent on such guidance.

While the principles-based goal of IFRS is laudable, whether the IASB, operating as a global monopoly, can withstand the pressure to furnish professionally crippling guidance to accountants is questionable. Instead, IFRS, coexisting and competing with various national standards, have a much better chance of operating in a world of social norms of financial reporting (see Sunder 2005a, 2005b) formed by this collectivity. In this world, it would be possible for accountants, investors and academics to compare alternative standards, and entities who choose to use them in their reports would be able to form their own judgments about the state of the entities, and motives of their management.

5.10. *Financial reporting and financial engineering*

The global financial crisis of 2007–10, especially in the financial industry, has made it clear that accountants are not the only ones who run the world of financial reporting. They share the space with a rarely acknowledged elephant in the room – the financial engineers. Accountants spend years discussing and devising their standards, and then the financial engineers take a few hours or days to design new instruments, transactions or organisations to find their way around the new standards to serve the reporting goals of their clients. No matter how complicated the rules the boards write, they cannot place effective constraints on reporting entities as long as the latter can devise new instruments and transactions.

Will an IFRS monopoly be more effective than a competitive regime of multiple standard-setters in dealing with financial engineering? In a competitive regime, there will be more experimentation, and there will be a rational basis for comparing how economies or entities under alternative standards function. By adopting a monopoly regime, accountants would unilaterally discard the only tool they have for dealing with the scourge of financial engineering.

5.11. *Eye-in-the-sky and camera–model interaction*

We can think about the relationship of a camera and its subject in two ways. One is as an unobtrusive eye-in-the-sky that flies high above and beyond the awareness of those being photographed. The second is the relationship between a model and the photographer. When the photographer points the camera, the model poses and smiles; when the photographer puts the camera down, the model relaxes, and may even frown.

We like to think that the accounting camera can operate as an eye-in-the-sky, and capture the model of the reporting entity the way it is – no posing and no distortions. But that is not possible. Managers and accountants are fully aware of each other's intentions and actions. There is little opportunity for them to surprise each other. Financial reports are always posed, not candid, pictures. People who see the pictures make adjustments for their posed or candid nature. So should the readers of financial reports. Overestimating their power to enforce their intent, monopolist standard-setters write rules intended to prevent subjects from posing. These rules fail, however, as is clear from the history of misstatements and restatements issued by public firms. In a competitive financial reporting world, IASB and its competitors, as well as the reporting entities and their investors, decide for themselves how long they wish to be led by authority.

6. Concluding remarks

As much as we may dislike it, the fact is that, at least in the USA, the accounting profession has had little to contribute to the most important policy decisions about the accounting regime that have been made during this past decade. Perhaps the same holds true, to varying degrees, in other jurisdictions. Most of the decision-makers – politicians and civil servants – know little about accounting, and fall prey to the ideas of whoever can 'whisper in the ears of the princes'. There is little verified knowledge about accounting regimes available to inform such decisions. Besides, policy science has made little progress in researching accounting or its practice as a profession.

The ancient tale of the Pied Piper has become a metaphor for a leader who entices people to follow (especially to their doom) by offering the promise of benefits, front and centre, while hiding the costs and risks behind the fog of time and uncertainty. IFRS-as-monopoly is not the first example of pied pipers in modern economic and business policy. In the 1990s, the so-called Washington Consensus on macro-economic policy had the backing of the International Monetary Fund, the World Bank, and most major economic powers and thinkers in the world. There were few critics then. Today, the Washington Consensus lies discredited and ignored, and has no defenders (Naím 2000). Similarly, the euro was adopted with much fanfare in 1999, and its benefits were promoted by the powerful and the knowledgeable. Today, the wisdom of that move is less clear. The IFRS, if allowed to develop by choice of investors and reporting entities in a competitive environment, is a good idea. If they happen to attain a universal following through such a market process, so be it. But let us think again about the damage we could inflict on our markets and economies by granting it a worldwide monopoly through the edicts of national governments.

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Notes

1. The evidence that adoption of IFRS results in greater comparability of financial reports across national boundaries, even within the European Union, remains to be adduced; anecdotal evidence in support is accompanied by similar evidence to the contrary.
2. This is true, even from the point of view of investors. Once we include the points of view of other parties in the financial reporting system, the justification for statistical correlation weakens further to the point of disappearance. However, this broader issue is not addressed here. See Beaver and Demski (1974) and Sunder (1997).

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Discussion

KEN LEE*

Managing Director and Deputy Head of Equity Research, Barclays Capital

[The views expressed here are the personal views of the author]

The underlying question for this paper is 'What are the downsides of IFRS adoption?' I welcome the opportunity to challenge preconceived ideas; in this case, the orthodox view of IFRS. It seems likely that for many the orthodoxy is that IFRS is a good thing but the paper has provided some interesting challenges.

I work on the sell side, which means that we produce research reports. Accounting information is absolutely vital for the work of the analysts in all investment banks. It is a hugely important input into what we do. Some analysts are better at it than others. We could argue about whether the capital markets studies disprove the importance of accounting but, in the humdrum of everyday experience, accounting is very much at the core of our activity.

The paper refers to IFRS as a monopoly and explores the danger of that state. The key question is therefore 'what is the alternative?' The paper indicates a solution of having IFRS as a choice in each regime, presumably in addition to the national accounting standards.

Clearly, this would result in national domestic monopolies, US GAAP being a good example. It would appear to me that a lot of the negatives in connection with a monopoly would apply with national (domestic) monopolies. There is a big question mark surrounding the idea that if we had a suite of national monopolies the cream (quality accounting) would rise to the top.

The paper notes anecdotal stories of how Turkish or Japanese translations deviate from the intent of the original but I do suggest that it might still be easier for us to get our heads around the translation of something into a foreign language when we are all talking about the same rule. It is very difficult, in an environment with lots of cross-border transactions to have a Turkish translation of an English rule, or an English translation of a Turkish rule. Does the translation of an IFRS rule represent the best compromise? It is a question of which is worse, which is more challenging. I do not necessarily have an answer to that, but I leave the reader to think about it.

We have the idea of domestic monopolies but what about the costs associated with having many different accounting standards? A decade ago, if I were talking to US investors, they would view European accounting as a bit of a joke; impenetrable, impossible to understand: different rules in different countries; not translated at all into any common language (English).

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*Email: Ken.Lee@barclayscapital.com

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Investors simply gave up on many European countries, particularly emerging markets, because they perceived the accounting to be of low quality and unfamiliar. It really encouraged them to invest in so-called safer Anglo-Saxon type markets if they wanted to be protected from poor accounting. That is something that has been transformed by IFRS. When I speak to clients now about emerging markets, it excites them that China broadly has IFRS. There are some differences. Clients are worried about the quality of auditing and governance, but the fact that we have overcome the particular concern about divergent technical accounting rules is progress.

We should not underestimate the problems previously facing an analyst who covered a pan-European sector like autos and had to deal with the vagaries of German GAAP and French GAAP (there is unfortunately very little UK GAAP involved in the auto industry any more). There was a massive cost in dealing with all the differences and difficulties of aligning those GAAP calculations. IFRS have not eliminated that challenge because, clearly, there are still some accounting choices. However, IFRS have made analysis more straightforward. Whether we like it or not the market reacts to point estimates of numbers, whether those be PE multiples or EV/EBITDA or some other measure. That single accounting estimate input into these valuation metrics is at least coming from a suite of reasonably consistent accounting rules.

There were some almost nonsensical calculations carried out in the City a decade ago. Suppose, for example, the analyst was comparing return on equity under German GAAP and UK GAAP. All the goodwill at that time written off against equity in the UK. The analyst could not always reverse out those differences in a simple way. The idea that we are miles away from that is a massive improvement in the practical day-to-day humdrum of people who use accounting to make investment decisions.

If I am talking about what we feel to be positive or negative, I have given some examples there. Behaviour has changed; by having consistent accounting and rules such as option expensing and the like, corporate behaviour has changed. Corporates know there is no point in moving to another country because similar rules exist there. So the amount of accounting arbitrage has dramatically reduced and it has changed corporate behaviour, probably for the better.

With consistent accounting language I can go to Johannesburg and talk about IFRS 9 and they know exactly what I am talking about. There is no issue of local standards being different. That leads equity analysts to have a more sophisticated approach to what they are doing.

The advent of IFRS has actually engaged the investor community. There are challenges for the investor community commenting sensibly on accounting standards. One of the problems is the time it takes to understand alternatives and judge which one is better. My personal experience is that the time it takes to acquire the technical toolkit plus the further time to make the judgment renders the overall process very difficult. Nevertheless, I do not think we have ever seen a higher level of engagement with the investor community. When there was more parochial accounting in local, domestic economies, there was not that level of engagement. I think that the advent of IFRS and global standards have been a real driver behind the peak in that interest.

I would not want, as my last comment, to say everything has been positive. One of my concerns is that the more accounting changes I see (leasing being a great example), the more I hear investors referring to 'normalised' earnings per share. However, I think that will happen anyhow even with retention of a domestic accounting model, having IFRS as an option. There is no point pretending: accounting is considerably more complex than it used to be. I question whether that is the fault of IFRS; I think the world has become a more complex and difficult place.

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New institutional accounting and IFRS

PETER WYSOCKI*

Accounting Department, University of Miami School of Business Administration, 5250 University Drive, K/E 308, Coral Gables, FL 33146-6521, USA

This paper reviews recent advances from the institutional economics and accounting literature to help build a nascent framework for 'new institutional accounting' (NIA) research. The framework has five basic elements: (i) institutional structure (formal vs. informal); (ii) level of analysis (macro institutions vs. micro organisations); (iii) causation (exogenous vs. endogenous institutions); (iv) interdependencies (complementarities); and (v) efficient vs. inefficient outcomes. I apply the framework to help provide insights into the determinants and outcomes of accounting institutions (including IFRS) and non-accounting institutions observed around the world. I conclude with a discussion of opportunities and directions for future research on 'new institutional accounting'.

Keywords: accounting; IFRS; incentives; institutions; mandatory disclosure; political economy; regulation; standard-setting

1. Introduction

This paper synthesises recent advances from the literatures of institutional economics and accounting to help build a nascent framework for 'new institutional accounting' (NIA) research.[1] I apply this framework to help provide insights into the interrelationships between institutions and International Financial Reporting Standards (IFRS) around the world. A key theme of this paper is that the determinants and outcomes of both accounting institutions (including IFRS) and non-accounting institutions are fundamentally intertwined. The ideas presented in this paper draw upon and complement recent related surveys on reporting regulation, accounting standards and IFRS (see, for example, Kothari 2000, Ball 2001, 2006, Leuz and Wysocki 2009, Hail *et al.* 2010a, 2010b, Leuz 2010).

There are five basic elements to the suggested framework for analysing the determinants and outcomes of both accounting institutions and non-accounting institutions: (i) institutional structure (formal vs. informal); (ii) level of analysis (macro institutions vs. micro organisations); (iii) causation (exogenous vs. endogenous institutions); (iv) interdependencies (complementarities); and (v) efficient vs. inefficient outcomes. Using these five basic elements, I discuss some of the strengths and weaknesses of recent advances in research on the interplay between institutions and financial

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*Email: p.wysocki@miami.edu

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reporting and economic outcomes. I also use this basic framework to provide insights on the links between institutions and IFRS.

The remainder of the paper is organised as follows. Section 2 summarises what is meant by the term 'institutions' and provides examples of recent theoretical and empirical advances in the study of institutions. This section also suggests reasons why institutions arise to address problems of exchange in an economy. In addition, I highlight the difficulty in empirically documenting which key institutions directly affect economic outcomes. In Section 3, I review the recent empirical literature that attempts to document the impact of institutions on corporate financial reporting and on related market outcomes. Section 4 focuses on recent empirical studies that examine the links between IFRS and institutions. Section 5 concludes the paper with a discussion of suggestions for future research.

2. What are institutions and why do they arise?

I begin by highlighting key concepts from the literature of institutional economics that help define the concept of institutions (including accounting as an institution) and how these institutions arise to address problems of exchange between economic players.

2.1. *Defining institutions*

One way of viewing institutions is that they are mechanisms that facilitate efficient exchanges and interactions between economic players (Olson 1965, Williamson 1975). Economic history has shown that many economies have institutions that are inefficient, yet these institutions seem to persist (see, for example, North 1981). Therefore, North (1990) proposes a more encompassing definition of institutions as the 'humanly devised constraints that shape human interaction' (p. 3) that provide the 'rules of the game in society' (p. 3) where the actions of players (organisations) are governed by rules (institutions).[2] Institutions influence organisational choices by defining which actions are suitable and supportable in an economy. Davis and North (1971) highlight that these legal, political and social rules establish the basis for production (both efficient and inefficient), exchange and distribution in an economy. Similar parallel concepts have also arisen in the sociology literature where institutions are defined as the 'cognitive, normative, and regulative structures and activities that provide stability and meaning to social behaviour' (Scott 2001, p. 33).[3]

In a general sense, institutions are both formal and informal mechanisms that guide economic and social exchanges and interactions. North (1994) highlights that informal institutions (including values and social norms) support and provide legitimacy to formal institutions (such as the laws and regulations).[4] Axelrod (1997) also points out that informal and formal institutions can be mutually reinforcing because values and norms are often formalised into laws and regulations, while laws and regulations can provide outside validation of values and norms. North (1990) highlights that in cases when formal institutions break down or cannot deal with certain contingencies, informal institutions can fill the void to prevent a total breakdown of economic transactions.

Another useful way to classify institutions is to differentiate between exogenous and endogenous institutions in an economy (see Davis and North 1971). Exogenous institutions are the formal and informal macro-rules in a country, including the legal system, cultural norms and social patterns. A key feature of exogenous institutions in a country is that they are 'sticky' and generally change slowly over time.[5] In contrast, endogenous institutions are the formal and informal micro-rules created by parties to facilitate specific interactions or exchanges within a given (exogenous) institutional environment (Davis and North 1971). Therefore, endogenous institutions (which include specific laws, contracts and organisational forms) give rise to the idea of deliberate institutional design (see Bresser and Millonig 2003). The role of institutional design in promoting economic development and freedom is also a central theme in the institutional economics literature (see, for example, Hayek 1960, Olson 1965, Demsetz 1967, North 1981, 1990, North and Weingast 1989).

This discussion of a working definition of institutions provides a natural starting point to introduce three of the five elements of the basic framework for 'new institutional accounting': (i) institutional structure (formal vs. informal); (ii) level of analysis (macro institutions vs. micro organisations); and (iii) causation (exogenous vs. endogenous institutions). Sections 2.2 and 2.3 introduce the two other elements of the framework, namely: interdependency and efficient vs. inefficient outcomes.

2.2. *Why do institutions arise?*

In a neoclassical economy with no transaction costs, institutions are irrelevant. However, as noted by Coase (1960), the neoclassical model only holds with zero transaction costs. Becker (1965), North (1981) and Barzel (1982) point out that transaction costs can be significant in an exchange setting if it is difficult to determine the qualities and quantities of traded items, if there are problems in enforcing the terms of trade and when trade is not repeated between economic players. In such cases, the players have incentives to engage in opportunistic behaviour that ultimately inhibits trade. Therefore, from an efficiency perspective (see Olson 1965, Williamson 1975), institutions arise to curtail this opportunistic behaviour and thus improve gains from trade. In particular, institutions can lower transaction costs, reduce information costs and information asymmetry, lower coordination costs, enforce and protect property rights, prevent deadweight loss, internalise externalities and address other possible market failures (see Coase 1937, Alchian and Demsetz 1972). On the other hand, North (1981) notes that the creation of increasingly complex institutions, with associated rules and contracts, increases the need for a central authority (the state) to enforce these rules and contracts. Expanded state authority provides opportunities for influential players to gain advantage with uneven state enforcement of rules and contracts which can lead to inefficient contracting and inefficient economic outcomes. Therefore, depending on the starting conditions and the existing institutional environment, the contracting demand for institutions can either lead to a virtuous cycle of more complex institutions and more efficient trade and growth, or to corruption, influence peddling and stagnation of trade and growth. As noted by Djankov *et al.* (2003a) in their appeal for research in the field of 'new comparative economics', a fundamental issue in institutional design is balancing the trade-off between the costs of opportunistic behaviour in economic exchanges (disorder) and the costs of state control with its unequal distribution of coercive power (dictatorship). The inefficiency perspective of North (1981) highlights the fourth element of the NIA framework: efficient vs. inefficient outcomes from institutions.

2.3. *Accounting as an institution*

The aforementioned transaction costs approach to institutions can also be used to understand accounting as an institution. In an economy, trade between and within firms and other contracting parties will be costly if it is difficult to verify the properties of what is being exchanged (including goods, capital and labour), if there are problems in enforcing the terms of exchange, and when exchanges are not repeated. Therefore, accounting is one institutional mechanism that can help lower transaction costs, reduce information costs and information asymmetry, lower coordination costs and improve enforcement of property rights (see also Watts 1977, Watts and Zimmerman

1986, Waymire and Basu 2007). From a historical perspective, the institutions literature acknowledges the role of accounting as an institution that helps facilitate more complex transactions in an economy. North (1990) notes that the enforceability of contracts is critical for economic development, and the application of accounting and auditing methods for use in debt collection and in contract enforcement helps facilitate this economic development (see also Watts and Zimmerman 1983).

Understandably, academics and practitioners alike often focus on the benefits and virtues of accounting as an institution.[6] However, like any institution, the creation of accounting and other supporting institutions can incur social costs because this increases the demand for a central authority to enforce the rules and contracts. Again, expanded central authority provides opportunities for certain influential players to tilt the accounting system and the contracting system in their own favour leading to inefficient economic outcomes. Therefore, while observed accounting institutions may lead to improved trade and growth, they may also facilitate corruption and inefficiencies. Therefore, in any analysis of an accounting system that arises in an economy, one must understand the balance between the possible benefits from increased contracting efficiency against the costs of central enforcement with its accompanying unequal distribution of coercive powers.

This institutional view of accounting highlights that it emerges endogenously in an economy. Therefore, the form, efficiency and quality of an accounting system is influenced by not only the physical and technological endowments and constraints in an economy, but by the presence of other man-made institutions that affect supply of, and demand for, financial information. These other institutions include the legal system, corporate governance mechanisms, and the existence and enforcement of laws governing investor protection and disclosure standards (see also Kothari 2000). However, the existence and development of these institutions also likely relies, in part, on the existence of an accounting system to specify contract terms and to allow monitoring and enforcement of the contracts and rules governing the exchange of goods, capital and labour. This 'chicken and the egg' problem highlights fundamental issues of endogeneity and complementarity between accounting and other (non-accounting) institutions. Therefore, the final element of the NIA framework is the issue of interdependency of institutions.

2.4. *Importance of institutions for growth and capital market development*

Whether and how institutions affect economic growth is a growing area of academic research. The field of 'new comparative economics' has emerged in recent years to understand how and which combinations of institutions in a (market) economy promote economic development (see, for example, Djankov *et al.* 2003a). However, a debate remains as to whether exogenous institutions (such as those transplanted by colonial development) or endogenous institutions ultimately affect development and growth.

More directly related to accounting is the growing body of evidence about which institutions are the primary mechanisms for financial market development as well as their effects on firms' financing decisions, ownership structure and dividend policies (see, for example, La Porta *et al.* 2000). In some countries, institutions promote honest financing transactions and commitment to good governance. This leads to more efficient capital markets and a self-reinforcing cycle leading to greater economic prosperity. In other countries, the observed institutions often lead to a declining feedback cycle where growth and development are stunted (La Porta *et al.* 1997, Rajan and Zingales 2003) and inefficient institutions continue to perpetuate (Acemoglu *et al.* 2001).

2.5. *The challenge of identifying and documenting which institutions are important*

While many theories exist for the possible role of institutions in influencing economic outcomes, it is ultimately an empirical issue to confirm the real-world effects of institutions on economic activity. Furthermore, academics and policymakers are interested in which institutions are necessary, sufficient or most important for economic and capital market development.[7] The economic history work of Douglass North (Davis and North 1971, North 1981, 1990) provides important historical narratives and case studies of the rise and impact of institutions in certain economies. Also, anecdotal evidence from the experiences of closely related regions (i.e. the former East and West Germany) suggest that different institutional choices can lead to dramatically different economic outcomes. However, to draw more generalisable inferences, researchers have turned to large sample studies of countries and firms to document the link between institutions and economic outcomes. In addition, these studies can examine more modern and advanced institutions that have developed in recent decades.[8]

These empirical studies attempt to provide insights into how specific institutions (in particular, designed institutions) affect the development and growth of economies and the efficiency of capital markets. Four methods have been generally used to document the effect of institutions on economic outcomes: (1) quasi-experiments using 'good' instrumental variables, (2) experiments where an assumed country-invariant industry characteristic is interacted with a country-level measure of the relevant institution(s), (3) micro-level surveys of managers' perceptions of institutional constraints in countries where their firms operate, and (4) descriptive cluster analyses.

The first method attempts to create a quasi-experimental setting to understand the impact of institutions by using good instrumental variables. Many recent studies follow the approach of Acemoglu *et al.* (2001) and use a country's colonial origin as the key instrumental variable for the quality of various institutions in the country. Other quasi-experiments use geographic location as instrumental variable for institutional quality in the country (e.g. Hall and Jones 1999). The important contribution of this literature is that it highlights the distinction between exogenous and endogenous institutions. This distinction is also important for the analysis of the interaction between accounting and other institutions.

One limitation of the 'quasi-experimental' approach is that the identifying instrumental variable (such as colonial origin) is assumed to affect only the average economic outcomes in a country through its effect on a small number of specific institutions (which generally focus on the protection of property rights). But, there likely exist other plausible competing channels and other institutions through which the observed economic outcomes can arise (e.g., Carlin *et al.* 2010). To rule out possible competing effects, one runs into the problem that there are innumerable institutions that may affect the economic outcome of interest (the 'curse of dimensionality'), yet only a limited number of observed countries in the world on which to collect data for a quasi-experiment. Even if satisfactory instrumental variables can be found there may not be enough degrees of freedom in country-level regressions to fully differentiate and rule out numerous possible competing hypotheses and effects.

Another limitation of aggregate country-level studies is that one can document associations, which may be consistent with the hypothesised effects, but the direct causal mechanisms for the economic outcomes are less compelling (see, for example, discussion in Levine and Zervos 1998 and Rajan and Zingales 1998). Most country-level studies rely on proxy indicators of the business environment, such as the strength of the legal system (La Porta *et al.* 1997, 1998), regulatory constraints (e.g. Djankov *et al.* 2003b, Botero *et al.* 2004) and governance (e.g. Kaufmann *et al.* 2010). However, many of these country-level proxies exhibit little or no variation over time. Thus it is difficult to distinguish these observed country-level institutions from country-, sector- or region-specific effects that may reflect other attributes in a country other than the specified institutions.

Finally, across-country studies of institutions that use common identifying instrumental variables suffer from a unique problem that ironically arises from the success of these variables. Morck and Yeung (2011) argue that 'successful' instrumental variables lose their value with repeated application in empirical studies because of an 'econometric tragedy of the commons bias'. In other words, each successful use of an instrumental variable likely creates latent variable bias problems for all other applications of the instrumental variable in both past studies and even future studies of institutions. Interestingly, Morck and Yeung (2011) recommend that across-country empirical studies should be supplemented with historical case investigations to reinforce the plausibility of the hypotheses, rule out competing stories and give detailed texture to ensure consistency of the claimed effects.

The second method to capture the impact of institutions is to use industry-level data to interact a country-invariant industry characteristic with a country-level measure of the relevant institutions to test for a proposed mechanism through which the institution leads to economic outcomes in industries that are particularly dependent on that mechanism. The use of interaction effects with industry data is an attempt to isolate the causal mechanism for the effect of an institution on economic outcomes in a country–industry pair (e.g. Rajan and Zingales 1998, Klapper and Love 2004). The advantage of this approach is that it controls for country and industry effects and thus suffers less from correlated omitted variable effects. The major limitation of this industry approach is that it relies on the major assumption that, in order to identify a performance effect, one country (often the USA) is claimed to exhibit an optimal arrangement for transactions and that industries approach these transactions in the same way regardless of the country in which they reside (e.g., Commander and Svejnar 2007). The problem with this approach is that the studies cannot fully control for possible endogeneity of the transactions environment and it is difficult to accept that countries with and without certain institutions would otherwise share a common technology of development.

The third way to identify which institutional mechanisms may lead to different economic outcomes in various countries is to carry out a direct survey of managers' opinions of the importance of institutions for the operation and growth of their firm. This approach addresses one limitation of the other two empirical methods described above: that institutional constraints undoubtedly vary from country to country in their impact on firms (see, for example, Commander and Svejnar 2007). However, this survey approach is not without significant limitations. For example, Bertrand and Mullainathan (2001) present a strong case against using subjective variables derived from surveys because they often cannot be used as dependent variables given that the measurement error in these subjective variables is likely causally correlated with the explanatory variables in a regression model.

Finally, as discussed in Leuz and Wysocki (2009) and Leuz (2010), the problems confounding the study of institutions are not just ones of identification and bias. More generally, there are likely to be complementarities between a country's institutions. In other words, multiple institutional elements endogenously arise to fit and work with each other. It is difficult, if not impossible, to attribute observed differences in accounting and economic outcomes across countries exclusively to certain institutions or factors. However, empirically documenting a broader structure of patterns of institutions and associated outcomes is still an informative exercise, especially if the patterns are consistent with proposed theories and mechanisms for the effect of institutions on economic outcomes. The fourth method used to analyse institutions is based on descriptive cluster analysis techniques (see, for example, Leuz *et al.* 2003, Leuz 2010). These papers use cluster analysis to show that many institutional elements tend to move together and are observed as 'bundles'. While the limited set of countries in the world prevents unequivocal (and causal) identification of which institutions are the core drivers of economic outcomes, the data reveal groupings of countries with similar institutional characteristics. Accounting quality varies systematically and predictably across these institutional clusters. The analyses in Leuz *et al.* (2003) and Leuz (2010) suggest that outsider economies with relatively dispersed ownership, strong investor protection and large stock markets exhibit lower levels of earnings management than insider countries with relatively concentrated ownership, weak investor protection and less developed stock markets. Leuz *et al.* (2003) also highlight that high-quality accounting; large equity markets and dispersed ownership patterns are complementary and joint endogenous outcomes of strong investor protection. This view is in contrast to La Porta *et al.* (1997, 1999) who treat accounting as an exogenous factor in explaining financing and ownership patterns.

3. Institutions and financial reporting – cross-country empirical evidence

Having discussed various empirical methodologies for capturing the effects of modern institutions, I next discuss some recent advances in the field of 'new institutional accounting' (see also Leuz and Wysocki 2009). This emerging literature provides insights into how modern institutions affect and interact with financial reporting outcomes and ultimately impact economic and capital market outcomes.

3.1. *Impact of institutions on firms' financing reporting and disclosure activities*

Recent international accounting studies investigate the link between countries' institutions and financial reporting outcomes (such as reporting quality) as well as the market effects of these outcomes (such as cost of capital, market liquidity and investment efficiency). In general, corporate reporting incentives are shaped by many institutional factors, including a country's laws, the enforcement regime (e.g. auditing), capital market forces (e.g. the need to raise outside capital), product market interactions, ownership and governance structure, and a country's baseline factor endowments. While the literature on the impact of institutions on accounting outcomes is still in its infancy, recent empirical evidence supports the notion that institutions affect firms' actual reporting and disclosure practices regardless of the accounting standards (e.g. Ball *et al.* 2000, Fan and Wong 2002, Leuz *et al.* 2003, Haw *et al.* 2004). This literature highlights the importance of institutional reporting incentives, rather than just accounting standards, as key drivers of observed financial reporting outcomes.[9] This has direct implications for the IFRS debate because various studies show that, even when firms are subject to the same accounting standards, reporting practices differ considerably across firms and countries (e.g. Ball *et al.* 2003, Ball and Shivakumar 2005, Burgstahler *et al.* 2006, Lang *et al.* 2006).

3.2. *Key cross-country studies on role of institutions on accounting properties*

Ball *et al.* (2000), Hung (2001) and Leuz *et al.* (2003) highlight that a country's legal and economic institutions affect firms' financial reporting incentives and impact the quality of financial information reported to outside investors. Ball *et al.* (2000) analyse firms from seven countries that differ with respect to capital market institutions and the extent to which they resolve information asymmetries via public disclosure or private communication. They show that firms from countries with 'common law' institutions exhibit more timely loss recognition than firms in 'code law' countries, consistent with the role of earnings in these economies (see, for example, Basu 1997). The Ball *et al.* (2000) paper fits into the 'new institutional accounting' framework by highlighting the role of broad macro institutions (element [iii] of the NIA framework) in influencing firms' reporting practices. However, this early study does not allow one to distinguish formal vs. informal institutions (element [i] of the framework), assess interdependencies in institutions (element [iii]) or gain insights into efficiency (element [v]) given that most of the countries in the sample have successful developed economies.

Finally, the limitation of the broad 'code' vs. 'common' law approach is that it is unclear which institutions from 'common law' regimes are the drivers and facilitators of (a) arm's length contracting and (b) determinants of timely loss recognition (i.e. element [iii] of the framework related to causation). In addition, the small sample of seven countries does not allow one to distinguish which underlying institutional mechanisms are driving the financial reporting outcomes. Therefore, it is unclear which, if any, of the institutions from successful 'common law' economies can be transplanted to other economies to achieve similar efficient economic outcomes.

Leuz *et al.* (2003) examine the quality of accounting earnings reported by firms from 31 countries. They show that both legal and enforcement institutions in a country are important determinants of corporate reporting quality. This study is among the first to document differences in earnings management across many countries using many measures. Leuz *et al.* (2003) provide a number of useful insights on the elements of the NIA framework. The paper documents descriptive clusters of institutional features that are associated with average reporting quality in a country (rather than relying on predetermined classifications of a country's institutional system). This approach provides new insights on possible interdependencies of institutions (element [iv] of the NIA framework). The instrumental variable regressions for a sizeable sample of countries in this study moves in the direction of identifying causation. Relatedly, the paper highlights the fact that observed accounting properties are an endogenous outcome of other institutions (in contrast to the exogenous treatment of accounting in prior finance studies).

Both Ball *et al.* (2000) and Leuz *et al.* (2003) also refocus the debate from just 'fixing' international accounting standards to recognising that institutions and incentives affect reported accounting numbers. A key message of these papers is that mandated accounting rules and regulations cannot be considered in isolation from other institutions and that accounting standards may have limited effectiveness without understanding other economic and institutional factors that affect firms reporting incentives (see also Ball 2001).

The findings of Ball *et al.* (2003) further reinforce this conclusion. Ball *et al.* (2003) examine the accounting properties of firms in four Asian countries that have similar accounting standards as other 'common law' countries (i.e. USA or UK) but different institutional structures. They find that reported earnings of firms based in Hong Kong, Malaysia, Singapore and Thailand have properties similar to countries with 'code law' institutions and are less timely than reported earnings from US or UK firms. Thus, despite the similarity of the accounting standards, the properties of reported earnings are different and in line with the influence of other institutions. However, this study examines only four countries and again applies broad 'code' vs. 'common' law classifications. Therefore, it is difficult to isolate the mechanisms for, and interactions of, the observed institutions with a country's accounting standards (elements [ii] and [iv] of the NIA framework).

Other factors that can affect financial reporting properties and disclosure outcomes include the enforcement activities of tax authorities and the development of the auditing profession. For example, Guenther and Young (2000) and Haw *et al.* (2004) suggest that a strong tax enforcement system within a country is associated with higher quality reported accounting numbers. On the other hand, it is unclear whether tax enforcement leads to financial reporting outcomes, or whether other institutional factors lead to high-quality financial reporting which then has the spillover benefit of greater observed tax compliance. For example, Wysocki (2004) presents evidence that suggests that tax compliance is an endogenous outcome of other institutional factors. In particular, better institutions provide incentives for higher quality reporting, and thus greater tax compliance, because the high-quality financial reports allow for easier detection of tax evasion.

The empirical evidence in Wysocki (2004) supports this reciprocal causal channel (and provides new insights on element [iii] of the NIA framework).

Francis *et al.* (2003) explore the impact of a key private-sector organisation, namely, the auditing profession, on reporting outcomes. They find higher average financial reporting and disclosure quality in countries with better developed auditing organisations and greater auditing enforcement. The contribution of this paper is that it examines micro organisations (namely, the auditing profession) instead of macro institutions which are generally the focus of most other cross-country NIA studies. However, this study also faces problems with the endogeneity of the auditing profession in an economy and whether it has a first-order impact on observed outcomes.

Bushman *et al.* (2004) examine cross-country variation in various institutions and accounting conservatism to provide descriptive evidence in possible channels through which specific institutions manifest their influence on observed conservatism. They find variation in observed accounting conservatism with the presence of varying legal/judicial systems, securities laws, political economy and tax regimes. While this study provides an early attempt at identifying causal institutional mechanisms for observed reporting outcomes (element [iii] of the framework), the study does not tackle interdependencies or issues of efficiency.

Other institutions can also affect the development and form of accounting standards. For example, the influence of firms through political institutions often leads to exemptions or exclusion of some firms from reporting regulations. Watts (1977) and Watts and Zimmerman (1986) discuss the role of political lobbying and institutions in development and implementation of accounting rules. Ball (2006) also discusses how political factors may specifically undermine the proper enforcement of IFRS in certain countries. However, the institutional forces (including political forces) that affect the regulatory and standard-setting process are important and largely underexplored issues in the accounting literature. The role of political institutions has received more attention in the recent institutional economics literature. For example, there is a robust and ongoing debate about whether legal origins or political institutions are the primary determinants of observed economic outcomes across countries (Roe 2006, Roe and Siegel 2010). Moreover, while the legal underpinnings of property rights protection is central to economic development, the question arises of who protects the property rights protection (see Haber *et al.* 2008)?

3.3. *Market outcomes arising from the interaction of institutions and accounting*

Complementing the reporting outcomes effects of institutions are studies that examine market impacts of accounting and non-accounting institutions. Hail and Leuz (2006) build on the work of La Porta *et al.* (2006) to examine international differences in firms' cost of equity capital across 40 countries and their association with the quality of countries' legal institutions and securities regulation. Hail and Leuz (2006) provide insights into interdependencies by showing that countries having more expansive disclosure requirements, better securities regulation and stricter enforcement mechanisms generally display a lower cost of capital.

There are also several studies that analyse the joint outcomes of firm-level disclosure choices and countries' institutional features. For instance, Chen *et al.* (2009) find that both higher country-level investor protection and higher disclosure and corporate governance ratings contribute to a lower cost of equity capital for Asian firms. However, their findings also suggest that, in emerging markets, strengthening countries' investor protection and corporate governance appears to be more important in reducing the cost of equity capital than does expansion of disclosure by firms. This study gives some new insights into the interdependencies as well as the impact of macro institutions vs. micro organisations (elements [ii] and [iv] of the NIA framework).

In contrast, Francis *et al.* (2003) analyse the link between disclosure and cost of capital for firms from 34 countries and find that more disclosure is associated with a lower cost of capital, but firms' voluntary disclosure choices appear to operate independently of country-level regulations. Again combining firm-level choices and country-level institutions, Eleswarapu and Venkataraman (2006) examine US ADRs from 44 countries and find that, after controlling for firm-level determinants of trading costs and home-country market share, trading costs (i.e. effective spreads and price impact of trades) are lower for cross-listed stocks from foreign countries with higher judicial efficiency, accounting standards and political stability.

3.4. *Complementarity and compatibility of accounting and non-accounting institutions*

Accounting standards are just one of many key institutional factors affecting financial reporting practices in a country. In addition, these institutional factors are likely to be complementary to each other (element [iv] of the NIA framework). For example, accounting numbers play an important role in financial contracting. Investors use financial statement information to monitor their claims and make investment decisions (e.g. Watts and Zimmerman 1986). Therefore, it is reasonable to expect that accounting standards evolve with other institutional factors to facilitate transactions between firms and various stakeholders. In addition, standardising financial reporting can facilitate contracting and reduce transaction costs relative to a world where reports and disclosures are negotiated on a contract-by-contract basis (e.g. Ross 1979, Ball 2001). The key parties in the economy are also active participants in influencing political institutions which affect the evolution of both reporting and other economic regulations and enforcement activities. As noted Leuz *et al.* (2010a, 2010b), a country's accounting standards are also influenced by ownership, investment and financing arrangements in a country. Conversely, specific accounting standards are likely to influence financial contracting (e.g. debt contracts, leases, executive compensation contracts). As a result of the institutional interdependencies, thoughtfully designed accounting standards and other parts of a country's institutional infrastructure should be complementary (see also Walker 2010).

The existence of complementarities between institutions implies that countries with different endowments of institutions are likely to select different accounting standards. As a result, historical differences in accounting standards across countries existed because of the corresponding variation in related institutions across countries. The complementarities between various accounting and non-accounting institutions also suggest that changes to a country's accounting standards cannot be considered in isolation from other institutions in a country. In other words, a change in accounting standards may make a country's overall economy worse off even though the proposed accounting change may, in isolation, seem beneficial for corporate financial reporting quality.

Therefore, it is very important to understand the interactions among elements of the institutions within an economy, including both regulatory, political, social customs and free-market forces. For instance, outside investor protection and public disclosure are likely to be complements in promoting arm's length financing arrangements. Similarly, rules typically need complementary enforcement to be effective. Another example of interactions among institutional elements is the possibility that regulations can interact with existing agency problems and cause undesirable outcomes. For example, Coates (2007) argues that the recent US introduction of new governance regulations interacted with litigation concerns of managers, directors and auditors to motivate over-investment in regulatory compliance. Complementarities also imply that countries' institutional systems exhibit path dependence, which in turn suggests a role for historical analyses (e.g. Bebchuk and Roe 1999, Waymire and Basu 2007). At present, however, we have relatively little research into the existence and nature of these institutional interactions beyond descriptive analyses such as cluster analyses (see Leuz *et al.* 2003, Leuz 2010).

Another institutional factor that is likely to interact with and possibly limit the effectiveness of accounting systems and standards is a firm's ownership structure, which responds to a country's institutional influences (La Porta *et al.* 1999). The evidence suggests that institutions that lead to weak protection of minority shareholders' rights and concentrated ownership also seem to lead to significant valuation discounts for firms (e.g. La Porta *et al.* 2002). Recent research shows that firms' ownership structures also shape insiders' reporting incentives and hence the quality of observed financial reporting (e.g. Fan and Wong 2002, Haw *et al.* 2004, Ball and Shivakumar 2005, Burgstahler *et al.* 2006). These indirect channels suggest that complex complementary effects arise among various institutions when it comes to the design and implementation of accounting standards (element [iv] of the NIA framework).

Given imperfect enforcement, the evolution of government institutions is also relevant for understanding the compatibility of an accounting system with other institutions in an economy. The form of government institutions is important because there is a balance between *ex ante* regulation to discourage malfeasance and *ex post* enforcement to penalise malfeasance. Recent work by Glaeser *et al.* (2001) and Djankov *et al.* (2003a) suggests important interactions and trade-offs between the costs and benefits of an *ex ante* approach where regulation and standards attempt to level the playing field for market participants vs. an *ex post* approach where the terms and outcomes for loss recovery (often through the courts) must be specified. For example, if *ex ante* regulation cannot identify all possible outcomes or capture future innovations in corporate misdeeds, then contracting parties must often rely on the courts to argue the existence and extent of injuries and penalties. On the other hand, if there are inequalities among litigants or there are agency problems in the court, then regulations can serve to limit the latitude and discretion of the courts.

3.5. *International effects and supra-national issues*

In this section, I consider the international network effects of institutions that spill across countries' borders. The existence of increasingly integrated global financial and product markets means that firms and policymakers cannot view domestic institutions and accounting standards in isolation from other countries' institutions (see also Leuz and Wysocki 2009, Hail *et al.* 2010a, 2010b). For example, Hail and Leuz (2006) explore global differences in firms' cost of equity capital across 40 countries and their association with the quality of countries' legal institutions and securities regulation. While they show that countries with broader disclosure requirements, stronger securities regulation and stricter enforcement mechanisms display a lower average cost of capital, these cost of capital effects are much smaller for markets that are more globally integrated. These findings suggest that capital market integration puts an upper bound on the cost of capital benefits from home-country institutions.

There is also impact of the availability of competing institutional regimes on firms' policy choices. For example, recent empirical evidence suggests that firms opt out of their local disclosure regimes by cross listing in the USA (e.g. Doidge *et al.* 2004, Hail and Leuz 2009), and firms voluntarily replace their domestic GAAP with IFRS or US GAAP (e.g. Daske *et al.* 2009). These studies show that institutional differences affect managers' and investors' decisions and that firms attempt to take advantage of these differences across countries. These types of experimental settings provide powerful insights because firms and investors reveal their satisfaction or dissatisfaction with institutions by 'voting with their feet' and, therefore, one skirts the problems of identifying causation (element [iii] of the NIA framework).

Even though it is difficult and costly for most firms to abandon their home-country regulatory and institutional regime, the existence of possible alternative regimes provides incentives for an incumbent standard-setting body to pay attention to various stakeholders' needs. Therefore, the presence of competing reporting regimes can increase the responsiveness of a country's standard-setters and help improve future standards and stimulate regulatory innovation.

There is also recent research on how firms address or get around hurdles they face in their home markets arising from regulatory, institutional or other constraints that limit their ability to raise capital, impede investment or hinder operations. The key issue is that firms that are located in countries with weak institutions often have problems accessing external finance because the controlling insiders of firms in 'weak institutional' environments are unable to credibly convince outside investors that they will not expropriate them. To address this problem, many firms from emerging market countries have sought cross listings in the USA and subjected themselves to US regulatory and enforcement mechanisms. In other words, firms adopt the 'rules of the game' of a foreign regulatory and institutional environment and thus commit to stricter disclosure, reporting, governance and enforcement regime of another country (see, for example, Coffee 2007, Stulz 2009).

Coffee (2007) and Stulz (2009) argue that US cross listing makes it more difficult and costly for controlling insiders to extract private control benefits and to expropriate outside investors. The idea is that US institutions better protect outside investors than those in most other countries and that these rights are more strictly enforced, either via the SEC or private securities litigation. By cross listing in the USA, foreign firms subject themselves to these institutions. Cross listing in the USA also imposes the requirement on foreign firms to include additional supplemental disclosures which makes it less costly for outside parties to monitor the behaviour of controlling owners and managers. Cross listing can also attract the attention of securities analysts and institutional investors, providing additional oversight and monitoring of the firm's managers.

The recent literature on stock exchange cross listings also adds to our understanding of the benefits and costs of various institutions in a country (see, for example, Lang *et al.* 2003, Doidge *et al.* 2004, Bailey *et al.* 2006, Hail and Leuz 2006). The results suggest that more demanding regulations and standards can be beneficial to (certain) firms and provide insights on efficiency of various institutions (element [v] of the NIA framework). On the other hand, countries with regulations that are perceived too onerous and hence costly may fail to attract foreign firms. Such claims have recently been made for cross listings on US exchanges after the passage of the Sarbanes–Oxley Act (SOX). Non-US firms are said to prefer cross listings on the London Stock Exchange. While recent research disputes this claim (e.g. Piotroski and Srinivasan 2008, Doidge *et al.* 2009), this discussion highlights that it can be important for regulators to consider the consequences of disclosure regulation on firms' cross listing behaviour and that stringent disclosure regulation can be a double-edged sword. With the globalisation of financial markets, firms have ever-increasing options to respond to regulation in their home countries, to attract capital from foreign investors as well as to 'opt in' to advanced institutional regimes.

In a related literature, recent studies also indicate that foreign investors seek out firms with better voluntary disclosures and invest more in countries with high-quality disclosure regulations. These studies show that foreign firms with better voluntary disclosures attract greater following by US institutional investors (Bradshaw *et al.* 2004) and mutual funds (Aggarwal *et al.* 2005). Aggarwal *et al.* (2005) present evidence suggesting that accounting reporting quality has investment effects that show up at both the firm and country level and that there are important interactions between the firm-level and country-level decisions.[10] Leuz *et al.* (2008) present evidence that firms with governance problems attract significantly less foreign investment (using comprehensive portfolio data of US investors) and that the association between governance and US investment is most pronounced in countries with overall governance weaknesses and poor information flows. While these studies suggest that firms are penalised by foreign investors for poor quality financial reporting, the findings also suggest an important interplay among numerous factors such as corporate governance, voluntary reporting choices, and disclosure rules and regulations. Overall, these studies provide insights into the capital market costs faced by firms in countries with institutional inefficiencies (element [v] of the framework).

4. IFRS and institutions

In this section, I provide some key examples of recent research advances on the links between institutions and IFRS. These examples complement the survey evidence presented in Leuz and Wysocki (2009), Hail *et al.* (2010a, 2010b), Brown (2011) and Pope and McLeay (2011).

A key objective of recent studies on IFRS adoption is to examine the differential impact of IFRS adoption across different types of firms and different institutional regimes. For example, Daske *et al.* (2008) show that the observed capital market outcomes surrounding the mandatory introduction of IFRS are not evenly distributed across countries. Daske *et al.* (2008) show that, in countries with limited reporting incentives and weak legal regimes, firms' market liquidity and market value are largely unchanged around the mandated adoption of IFRS. They also show that the effects around mandatory IFRS adoption are largest in countries that have large differences between home-country GAAP and IFRS, together with strong enforcement/reporting incentives. Overall, the results in Daske *et al.* (2008) indicate that the strength of a country's legal/enforcement regime as well as firms' reporting incentives are linked to observed capital market outcomes. Viewed more broadly, the evidence is also in line with the notion of complementarities in that the effects of IFRS adoption depend on other elements in countries' institutional infrastructure (element [iv] of the NIA framework).

Florou and Pope (2010) study changes in institutional investors' investment allocations surrounding IFRS adoption. Overall, they find that the institutional ownership in IFRS adopter companies increases after adoption. More importantly, Florou and Pope (2010) document that these effects are most pronounced for companies that reside in countries where institutions and enforcement are strong.

These early studies suggest that the patterns and outcomes of IFRS adoption vary greatly across institutional regimes. While the overall impact of IFRS is still to be determined, promoters of IFRS often argue that uniform global standards are obviously superior to disparate, and in many cases competing, standards across markets. However, it is not obvious, nor has it been empirically documented, that one set of mandated global accounting regulations, let alone the specific standards contained in current IFRS, is superior to other possible scenarios (e.g. Dye and Sunder 2001). While mandatory uniform rules and regulations may provide aggregate economic benefits, the individual and aggregate costs of uniform global regulations on firms, investors and other stakeholders are more difficult to quantify and document. In particular, IFRS draw heavily on the current financial reporting regulations of countries and markets that are geared toward outside capital providers. Moreover, these advanced countries have institutional infrastructures that complement the types of reporting regulations that have developed in these markets. Therefore, it is far from clear that IFRS will be superior, or even effective, in countries that have evolved different institutions and thus lack the necessary infrastructures to support the effective application and enforcement of the uniform global standards (see also Walker 2010).

The overall survey evidence in Hail *et al.* (2010a, 2010b) generally indicates the adoption of a uniform set of accounting standards is not enough to ensure comparable reporting and disclosure practices, even if the global standards are uniformly and strictly enforced and implemented across countries. The reason for this ongoing lack of uniformity is that reporting incentives will still vary systematically across firms, industries, stock exchanges, countries and political regions. Thus, convergence in firms' accounting practices is unlikely unless there is also convergence in countries' institutions that strongly affect managers' reporting incentives (e.g. Joos and Wysocki 2007, Bradshaw and Miller 2008). Much of the empirical evidence suggests that the stand-alone role of accounting standards is more limited than often thought. Accounting standards are just one of many institutional features in a country that influence firms' and managers' reporting incentives and thus actual reporting and disclosure outcomes.

5. Conclusion

This paper synthesises recent advances from the institutional economics and accounting literatures to help build a nascent framework for NIA research. A key theme of this paper is that the determinants and outcomes of both accounting institutions (including IFRS) and non-accounting institutions are fundamentally intertwined. There are five basic elements of the NIA framework for jointly analysing accounting institutions and non-accounting institutions: (i) institutional structure (formal vs. informal); (ii) level of analysis (macro institutions vs. micro organisations); (iii) causation (exogenous vs. endogenous institutions); (iv) interdependencies (complementarities); and (v) efficient vs. inefficient outcomes.

I use this basic framework to provide insights on the links between institutions and firms' financial reporting activities across countries. This framework shows that there are still many unanswered questions about the structure, types, causation, interdependency and efficiency of observed accounting and non-accounting institutions. I also discuss four major research techniques currently used in the international accounting literature to explore the links between institutions and financial reporting outcomes. However, these current techniques may be inadequate to analyse and fully understand the multiple endogenous and complementary institutions ('bundles') observed in most countries. Without major innovations, the standard regression techniques currently used in empirical studies may be reaching their limits for across-country studies on institutions and accounting. However, another technique exists and may be particularly well suited for international studies of institutions: Structural Equation Modelling (SEM). SEM is an empirical methodology with a long history in the social sciences and economics. It has the potential to provide additional insights on the interrelations (and possible causal links) between many endogenous and possibly complementary institutions including IFRS. Despite the critique by Lucas (1976), the careful application of SEM techniques shows promise to help researchers understand the determinants and patterns of multiple institutions across countries (e.g. Simon 1953, Pearl 2000). For researchers in the field of 'new institutional accounting', SEM may provide a useful and flexible approach compared to standard regression methods because variables can act as both independent and dependent variables. Based on this flexibility, SEM has the potential to provide more insights and pathways about institutions and it allows for direct statistical tests of interrelations (which is not possible using descriptive techniques such as cluster analysis).

Going forward, a major challenge for NIA reseachers is to attempt to benchmark the observed outcomes of a chosen set of accounting standards and institutions against the outcomes of forgone (and generally unobservable) alternatives. As noted in Hail *et al.* (2010b), one can attempt to measure the economic outcomes of IFRS adoption, but one cannot observe the possible outcomes of alternative regulatory scenarios such as countries maintaining their domestic GAAP while there are changes to other institutions, or supporting coexisting sets of competing standards in a country or region (e.g. Sunder 2002, 2010). Without these counterfactuals, it is difficult to know whether observed post-IFRS outcomes are attributable to IFRS adoption, let alone optimal.

Another challenge for NIA researchers is to provide more insights into how the adoption of certain accounting standards and insitutions lead to certain economic outcomes (such as a lower cost of capital, increased liquidity or improved investment decisions). For instance, Hail *et al.* (2010a) present research findings suggesting that improved or more comparable financial reporting can have various economic benefits and discuss to what extent such effects could result from IFRS adoption. However, the issues go beyond just accounting standards. Therefore, it would be useful to gather new evidence on whether and how institutions influence economic outcomes through: (i) the inherent quality of accounting standards and institutions; (ii) the comparability benefits arising from widespread adoption of common standards and institutions; (iii) the network and spillover effects arising from many users of common standards and institutions (e.g. Währisch 2001, Meeks and Swann 2009); and (iv) the compatibility of accounting standards with a country's other institutions (e.g. Leuz 2010).

Another question to consider is whether a single set of global accounting standards can or will be accepted and uniformly applied around the world. Based on the themes discussed in this paper (as well as issues highlighted in Hail *et al.* 2010a, 2010b), institutional factors are likely to remain a primary driving force for firms' reporting practices in the years to come. Hence, adopting IFRS on a worldwide scale is unlikely to eliminate all national, industry and firm-level institutional influences. Local capital markets, enforcement institutions and economic forces are simply too strong and diverse, making uniform implementation of IFRS around the globe highly unlikely (see also Ball 2006, Nobes 2006, Daske *et al.* 2008, 2009). These forces could lead to regional 'flavours' of IFRS or different de facto standards in each country that claims to adopt IFRS.

The complementarities between, and substitution across, institutions in a country is a key issue discussed in this paper. While prior NIA research has provided some insights, we still do not fully understand the necessary or sufficient set of institutions to truly implement IFRS. What is clear is that if a country does not have strong supporting institutions, then financial reporting is likely to be ineffective in the country and there are likely to be negative spillover effects for other countries in the IFRS network. The IFRS 'brand name' may be damaged when countries unsuccessfully adopt and implement IFRS. It may be asked whether a country should be required to have a minimum set of supporting institutions before it can adopt IFRS? On a related note, even though certain institutions seem to support high-quality financial reporting in developed countries, it may be asked whether alternative institutions can still lead to 'second best' economic and accounting outcomes in other economies (see Lipsey and Lancaster 1956, Rodrik 2008).

The final element of the NIA framework presented in this paper focuses on possible inefficient outcomes from accounting institutions. North (1981) notes that the creation of increasingly complex (accounting) institutions increases the need for a central authority to enforce increasingly complex rules and contracts. However, expanded central authority allows influential players to tilt the accounting system in their own favour, leading to inefficient contracting and degradation of markets. There is an important trade-off between the benefits of institutions that address opportunistic behaviour in economic exchanges and the costs of necessary central control and enforcement, with its unequal distribution of coercive power. This raises important questions for the future evolution of IFRS and its implications for economic efficiency. For example, have IFRS and the IASB become an irreversible supra-national institution? Have we gone beyond a tipping point and past the point of no return to create an international club that countries can freely join, but that is then nearly impossible to leave without incurring massive costs? Like the recent experiences of the European Monetary Union (see Scott 1998, Eichengreen 2010), this may leave countries with no credible options if they wish to contemplate leaving the IFRS network at some point in the future. This lack of alternatives and competition increases the risk that the IFRS may evolve into an inefficient institution that benefits certain influential players (see also Sunder 2010, for a discussion of monopolies in standards).

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Notes

1. The term 'new institutional accounting' is also used by Leuz and Wysocki (2008) to capture *recent* research advances on how the interactions of market forces, laws, regulations, standards, enforcement activities and other 'institutions' affect corporate financial reporting and disclosure outcomes.
2. Douglass North was awarded (jointly with Robert Fogel) the 1993 Nobel Prize in Economic Sciences 'for having renewed research in economic history by applying economic theory and quantitative methods in order to explain economic and institutional change'.
3. While there are similarities between the economic and sociological views of institutions, the economic version (Williamson 1985, North 1990) emphasises the efficiency/inefficiency of transactions while the sociological version (DiMaggio and Powell 1991, Scott 2001) focuses on social legitimacy. In this paper, I focus on the role of accounting in economic transactions and therefore the discussion of 'new institutional accounting' mostly draws from recent advances in the institutional economics literature.
4. Informal institutions include culture, values, norms, and social capital also have strong economic underpinnings and have become more widely accepted in standard economic modelling (see, for example, Bénabou and Tirole 2010a, 2010b). The role of culture has also been explored in accounting (see, for example, Gray 1988, Gray and Vint 1995, Nobes and Parker 2002, Hope 2003).
5. I further discuss this issue in Section 2.4. This persistence property of exogenous institutions offers both advantages and disadvantages for policymakers and academic researchers wishing to understand the role of institutions in economic and capital market development.
6. For example, Larry Summers has stated on multiple occasions that 'the single most important innovation shaping the American capital market was the idea of generally accepted accounting principles' (speeches delivered when he served as the US Secretary of the Treasury).
7. In the context of IFRS, the corollary is which supporting institutions are either necessary, sufficient or most important for successful implementation of IFRS in a given country. These issues are discussed in Sections 3.3 and 4.2.
8. Historical studies of older institutions also provide important insights into how and why institutions evolve and work. However, rapid advances in technology and markets in recent years may limit the insights and lessons that can be drawn from historical studies of relatively simple institutions in earlier periods. For example, the development of a modern global accounting institution such as International Financial Reporting Standards (IFRS) has relatively few historical counterparts.
9. This arises because currently observed accounting standards give firms and managers wide reporting discretion because judgment is required to apply most standards.
10. For example, Aggarwal *et al.* (2005) find that firm-level voluntary disclosure effects are most pronounced for firms that reside in jurisdictions with lower mandated disclosures.

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Discussion

MARIO ABELA*

Research Director, European Financial Reporting Advisory Group (EFRAG), 35 Square de Meeûs, Brussels, Belgium

[The views expressed here are the personal views of the author]

In my view Wysocki's paper is incredibly ambitious in its scope, surveying the whole institutional terrain and its antecedents. It has a lot to offer us in terms of developing an understanding of how accounting fits in. One of the unfortunate things is that the institutional framework is just considered as context but not as an essential part of the whole process – and that is an important thing to flag here. It acknowledges the global/local environment within which standard-setting is taking place and within which financial statements are prepared. That is also important because the interaction between the two is often lost sight of.

The paper does, however, draw a very bleak prognosis. Towards the end of the paper there is the question: 'Have we gone beyond a tipping point and past the point of no return to create an international club that countries can freely join, but that is then nearly impossible to leave without incurring massive costs?' That is one view of the world, but I do not think the reality is so bleak.

In terms of the methodological aspects of the paper, my only observation is that it would be rather reductionist to limit ourselves to purely quantitative analysis. I know that the words 'qualitative analysis' in accounting research are not always considered to be very objective or useful. However, I think you probably need both because here you are not only considering the economic effects but also socio-political dimensions, and it is important therefore to use other tools to understand those. It is important also not to lose sight of the trends and continuities, rather than the discontinuities, in the recent history of institutions.

Here are some points for debate – first, I think that democratic rule-making is a good thing. If you look at IFRS and the changes that have been made (and proposed) to the standard-setting process, they are pushing in that direction, so that has to be a good thing. Second, this is an emerging field. We have not yet arrived and we do not have the answers, but we should not despair when faced with opportunity. Many comments have been made that it is not a perfect system. There is no perfect system, but that opens up opportunities for us rather than reasons to despair.

Third, I would argue that effort should go into debating the evidence. What evidence do we need to support the conclusions of whether or not something is good, whether an accounting

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*Email: Mario.Abela@EFRAG.ORG

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standard is good or not, whether its consequences are good or not? We should also consider the effects of accounting standards; how do we know them; and what technology do we need to assess them. That is one point that is lacking: we still do not have the technology and we struggle to understand the effects of accounting standards or even why we should bother thinking about them as part of the technical debate.

One issue that I do not see in the literature reviewed is the concept of professionalism, which is essential to IFRS. I think that that is what made IFRS possible in the first place. IFRS is a system of learning. The exercise of professional judgment is also really important. That is absolutely clear and we cannot forget that. IFRS cannot replace that and we should not let it replace that – otherwise we are back to a system of rules and not principles to guide professional judgments. Part of the problem with accounting today is that there is lots of 'wiring' via complicated rules and processes. The quality of reporting sometimes gets set aside in debates; it is not clear that there is a systematic view or a scientific approach.

Alternatively, we would like to move towards a more scientific approach, and I think we are inching towards that. The point was made this morning about more experimentation. For developing the science of accounting there needs to be much more experimentation. It has become almost a mantra in standard-setting debates to say that 'we need to develop principles, not just rules'. The conceptual framework has become a half-built edifice that seems to get in the way more than it provides insights. I am not sure we have the principles we need: there is no firm set of principles, like in physics, that you can apply in accounting. However, we need to find those principles for IFRS to work effectively at the global/local level.

In terms of the five basic elements, the relationship between accounting and other institutions is something of which those involved in standard-setting are acutely aware. In terms of the issue of 'one size fits all' and the problems of policy borrowing, they are real issues, but I do not think we would expect it to be any different. There will always be unevenness in implementation within or across countries, which is something to be aware of and to learn from. This happens even in the case of domestic GAAP.

I feel that what is lacking in the paper is reference to the geopolitical forces and the rise of global institutions and their interrelationship with what happens at a domestic level. I think they improve the performance. The role of supra-national bodies like EFRAG and AOSSG (Asian Oceanic Standards-Setting Group) is important in acting as a go-between for complex institutions (in EFRAG's context, complex European institutions) and the standard-setter. I do not think that that in any way diminishes national sovereignty; it does not compromise it at all but it helps construct a dialogue between these organisations.

My final key point is about offering a stronger link between public interest and strengthening accountability. In the current environment, policymakers are looking for a more evidence-based approach. EFRAG will issue a discussion paper in January 2011 looking at the consequences of accounting standards, which we hope will open up this whole debate because, as I said, what was missing is that we have lost the need for debate in addressing financial reporting issues. That is important.

In summing up, it is asserted in the paper that adopting IFRS on a worldwide scale is unlikely to eliminate all national, industry and firm-level institutional influences, making uniform implementation of IFRS around the globe highly unlikely.

It is, however, a relevant observation that good financial reporting is not an end state but a continuous, evolving process. IFRS are a means, not an end in themselves. It is fair to say that IFRS in Europe have created a common financial language; at least we all know what we are talking about when we come to look at an issue. I think that is important.

Although the impact may not be readily apparent, the concepts of stewardship, transparency and accountability remain central in these debates, regardless of whether our attention is at the global IFRS level or on how IFRS are applied on the ground locally. Hopefully, we will not lose sight of those important foundations of what we are trying to do here.

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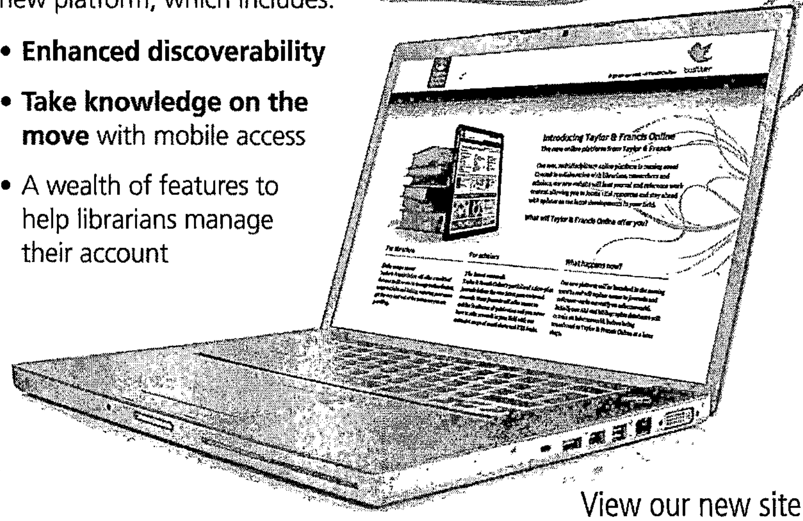

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IFRS, 2010. *IFRS 9, Financial Instruments* (as amended at October 2010). IFRS Foundation.

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Audit team defence mechanisms: auditee influence

BREDA SWEENEY[a]* and BERNARD PIERCE[b]

[a]*J.E. Cairnes School of Business & Economics, National University of Ireland, Galway, Ireland;*
[b]*DCU Business School, Dublin City University, Glasnevin, Dublin 9, Ireland*

This study examines the perceived ability of auditees to influence external auditor controls and audit team behaviour (through, for example, delaying the availability of information and selecting samples in advance for auditors). Semi-structured interviews were carried out with 18 auditee staff from seven publicly-listed companies who interacted on an ongoing basis with the audit team. The findings provide an external perspective on weaknesses in auditors' control systems and suggest that game playing occurs between auditee and auditor staff in coping with conflicts that arise during audit fieldwork. These constitute a form of inter-organisational defence mechanism (coping mechanisms employed by individuals in organisations to avoid embarrassment and threat). Furthermore, the findings reveal previously unidentified auditee-related variables that can impact on the effectiveness of the auditor's control system. A number of implications of the findings for audit firms and society are identified, such as the level of trust placed by society in inexperienced time-pressured audit trainees, societal expectations of auditors and the need to reduce the predictability of audit testing.

Keywords: auditor–client interaction; auditor control system; defence mechanisms; dysfunctional auditor behaviour

1. Introduction

The level of scepticism applied by auditors in dealing with auditees is currently highly topical given the failure of auditors to alert the public to the impending banking crisis. Indeed, in the UK, a House of Lords enquiry was set up in 2010 to examine 'auditors: the market concentration and their role' and the Auditing Practices Board issued a discussion paper on 'Auditor scepticism: raising the bar' (APB 2010). A memo by the Financial Reporting Council to the House of Lords enquiry commented:

> In considering behaviour and culture within the firms, the AIU [Audit inspection unit] has identified a number of instances of firms failing to apply sufficient professional scepticism in relation to key audit

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*Corresponding author. Email: breda.sweeney@nuigalway.ie

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> judgements. This lack of scepticism may manifest itself in a number of ways: over-reliance on management representations; failure to investigate conflicting explanations; failure to obtain appropriate third party confirmations; or seeking to obtain evidence that corroborates, rather than challenges, judgements made by client management (FRC 2010a, paragraph 2.9)

Concerns are raised in the APB discussion paper that a cosy relationship may exist between the auditor and auditee, which reduces auditor scepticism (APB 2010). Deloitte, in their response to the APB discussion paper, stated that one way of promoting and developing auditor scepticism is to require work on high risk areas to be completed earlier in the audit process to allow more time to challenge management's judgements (FRC 2010b). As the following interviewee quote from our study suggests, delaying tactics may be used by management to reduce the amount of auditor scrutiny on a particular area:

> Another tactic you can use is, well if they don't ask for a date, well look there's four weeks to go, the more time that goes along the less time they have to delve into something, so fobbing them off that way, 'oh yes I must do that for you I'm really sorry, yes', you know you can spin them on and I've done that as well and it has worked, there's no doubt about that (7).

The ability of the auditee to influence audit team controls and audit team behaviour has not been examined in previous research. Perceived auditee influence provides an interesting illumination of the backstage of audit work, particularly given the current attention focused on auditors and their effectiveness. The control system in audit firms and perceived pressure exerted by auditees on budget tightness have been shown to contribute to dysfunctional behaviour by the audit team, such as quality-threatening behaviour (Pierce and Sweeney 2004, Sweeney and Pierce 2004). Audit teams encounter a number of tensions in the field, including a conflict between audit cost and audit quality and a conflict between the need to remain objective and the need to achieve auditee cooperation. In dealing with these conflicts, and to avoid embarrassment or threat, auditors engage in individual defence mechanisms that gain acceptance by the organisation and become organisational defence mechanisms (Sweeney and Pierce 2006). The types of behaviour occurring represent a coping mechanism (Herrbach 2005). Previous studies have revealed weaknesses in the control system used by auditors, showing that input, output, behavioural and clan controls have limited effectiveness. This is the result of the difficulty of measuring the output of the audit and the fact that the majority of audit work is carried out on the auditee's premises where audit management are not present. Perceptions of audit seniors and audit partners in relation to these weaknesses have been examined in previous studies. However, a significant omission from prior research has been the perspectives of auditee personnel. Given that the audit team spends much of its time on the auditee's premises, often in close contact with auditee staff, these perspectives seem important.

Audit seniors have been shown to perceive that auditees could influence the level of time pressure on an audit and contribute to the use of defence mechanisms by auditors (quality-threatening behaviour) through timing of delivery of information to the audit team, unrealistic time deadlines and lack of preparation for the audit (Sweeney and Pierce 2004). This represents a potentially interesting area of research, in that it suggests the possibility of significant influence by an external body on defence mechanisms employed by auditors. Audit seniors perceived a likely difference in attitude of auditees, depending on whether they previously engaged in quality-threatening behaviour as an auditor (Pierce and Sweeney 2006). That study suggested that auditee personnel who are themselves former auditors may seek to manipulate the audit team to a greater extent than other auditee personnel as they have a greater insight into the defence mechanisms employed by auditors.

This research therefore examines the perspectives of auditee staff regarding their ability to influence auditor controls and audit team behaviour. To our knowledge, this is the first published study to report perspectives from outside the audit firm in relation to dysfunctional behaviour of the auditor. It contributes to the literature in a number of ways. First, the findings provide a basis for extending prior understanding of audit team organisational defence mechanisms to embrace an inter-organisational dimension, whereby the actions of auditee staff present the audit team with a coping mechanism for dealing with conflicting demands of cost and quality considerations. Second, the existence of a common identity between auditor and auditee staff with a common purpose of completing a trouble-free audit and avoiding potential embarrassment and threat is highlighted. Third, previously unexamined variables associated with the relationship between the auditor's control system and quality-threatening behaviour are uncovered. Lastly, a key finding that emerges is the complexity of auditee influence on audit team behaviour in terms of their exploitation of perceived weaknesses in the auditor's control system and justifications provided for such influence.

Section 2 reviews prior literature and describes the objective of the study. Section 3 outlines the research method. The findings are reported in section 4 and discussed in section 5. Section 6 concludes.

2. Prior literature and research objective

Recent financial scandals have suggested a mismanagement of companies and a failure of the monitoring and assurance provided through independent audit. Some of these outcomes have been attributed to conflicts of interest (Moore *et al.* 2006). The auditing literature highlights the importance of auditor–auditee interactions and the tensions with which auditors are confronted in conducting the audit as the general context for this conflict. A stream of literature has documented the cost/quality conflict faced by audit seniors and juniors as a result of the audit firm's control system. It has been shown that individual and organisational defence mechanisms are frequently created by audit juniors and seniors in order to cope with this cost/quality conflict. The literature on defence mechanisms forms the theoretical framework for the study. Audit team conflicts constitute the general context in which defence mechanisms operate. These conflicts are reviewed in section 2.1 as relevant background for the theory on defence mechanisms (section 2.2).

2.1 *Audit team conflicts*

A hierarchical organisational structure is in place in audit firms, where audit juniors and seniors perform the majority of audit work (measured on a time input basis) on the auditee's premises and interact frequently with auditee staff. In carrying out this fieldwork, a potential conflict arises in auditee relationships where auditors need the cooperation of auditee staff but at the same time need to remain objective (Audit and Assurance Faculty 2002). Auditee cooperation can enhance audit quality. Indeed 'the auditor has no option but to bestow some degree of trust upon client management' (Rennie *et al.* 2010, p. 279). However, auditee influence may have an adverse impact on audit quality. Professional scepticism is also needed by auditors in carrying out their work. The Audit Inspection Unit, in its 2009/10 annual report, emphasised the need for audit firms to exercise greater scepticism (FRC 2010c).

Gendron *et al.* (2006) referred to the need for auditors 'to maintain emotional distance from auditees' in exercising auditor independence. Moore *et al.* (2006) noted three potential threats to auditor independence: managers hiring and firing auditors, auditors taking positions with auditees, and auditors providing non-audit services. Excluded from this is the importance of auditor–auditee interactions in determining audit quality. At the audit junior and senior levels, developing a relationship with auditees in order to achieve auditor cooperation may compromise their emotional distance from auditees. Previous research has questioned how a balance between professional scepticism and the need for auditee cooperation can be achieved. Kneckel (2007) referred to the increased reliance on auditee explanations in recent years and pointed out that auditors are more comfortable judging documents rather than people. The importance of strength of character in dealing with challenging or confrontational situations (Audit and Assurance Faculty 2002), the need for auditors to develop new interpersonal skills such as the ability to interpret body language of auditees (Barrett *et al.* 2005) and the ability to assess appropriate timing for information inquiry and information delivery requests from the client (MacLullich 2003) have been noted in the literature.

Related to the level of scepticism of auditors is the reasoning process involved in auditor–auditee interactions. Research in this area has focused on whether auditors anticipate the risk of auditees manipulating audit procedures to conceal fraud in designing their audit procedures. Wilks and Zimbelman (2004) maintained that auditors using strategic order reasoning will adjust their audit plan by incorporating non-standard procedures with which the auditee is unfamiliar (such as, during an inventory count, requiring the auditee to open boxes that are difficult to access). Research in the area, however, indicates that auditors plan to collect the same evidence from year to year (ibid.) and that auditor controls and procedures are perceived by auditee staff to be predictable (Hellman 2006). Francis (2004) pointed out that audit firm alumni would be more familiar with their former accounting firm's audit methodology and could more easily deceive auditors. Also, previous research on auditor negotiations suggested that an auditee's previous experience as an auditor may impact on auditor–auditee negotiations as the result of a better understanding of the auditor's perspective (Bame-Aldred and Kida 2007). The ability to engage in strategic reasoning is linked to the level of the auditor's understanding of the auditee's environment and business risks (Wilks and Zimbelman 2004) and the opportunities to learn an opponent's strategies (Camerer 1990), which, in the context of auditor–auditee interactions, arises during interactions with auditee personnel (Wilks and Zimbelman 2004).

A further source of conflict for the audit team arises from the tensions between professional and commercial logics of action (Gendron 2002). These tensions manifest themselves in the cost/quality conflict that stems from the management control system in operation in the firms. As a result of the difficulty in measuring audit quality, controls focus on surrogate measures of quality, such as use of audit working papers (Fischer 1996, Power 2003). The main audit cost is time and this is tightly controlled using time budgets (Kelley and Seiler 1982). Increasing the quality of an audit very often involves investing more time in the audit. Auditors therefore face a conflict in striving to meet very measurable time budgets or deadlines and less measurable standards of quality. When auditors are subject to tight time constraints, the incentive exists for them to engage in dysfunctional behaviour such as quality-threatening behaviour or manipulation of time records in order to meet time constraints in the form of deadlines or budgets (McNair 1991, Pierce and Sweeney 2004). This study focuses on quality-threatening behaviour, as such behaviour is likely to be of greater relevance to auditees than other types of behaviour such as manipulation of time records. Previous studies have found that auditors engage in a range of quality-threatening behaviour such as: accepting weak client explanations; reducing sample sizes; and prematurely signing off tests without completing the work (Kelley and Margheim 1990, Pierce and Sweeney 2004). As a result of the nature of the audit process, actions such as these can be very difficult to detect (Pierce and Sweeney 2006, Sweeney and Pierce 2006).

2.2 *Defence mechanisms*

Argyris (1990a) viewed dysfunctional behaviour as a typical response to the threat of embarrassment, such as that which can arise when a subordinate is confronted with a very difficult budget target. This literature has been linked to dysfunctional behaviour in audit firms (Sweeney and Pierce 2006). Such behaviour arises from defensive reasoning by individuals where they are afraid to confront the reason for the conflict by openly discussing the matter with their superior and choose instead to resolve the conflicting situation privately using individual defence mechanisms:

> whenever human beings are faced with any issue that contains significant embarrassment or threat they act in ways that bypass, as best they can, the embarrassment or threat. In order for the bypass to work, it must be covered up. The basic strategy involves bypass and cover-up. ... because so many individuals use these actions frequently, the actions become organizational norms. The actions come to be viewed as rational, sensible and realistic (Argyris 1990b, p. 25).

Audit superiors and subordinates understand that cost/quality conflict and the difficulty of simultaneously meeting cost and quality requirements are not matters that are open to discussion (Sweeney and Pierce 2006). The consequence is that a 'double bind' (Argyris 1990a) exists within the control system, where auditors who act in accordance with best current practice will find themselves in a position of having to admit that they are unable to meet both cost and quality requirements. That in turn will result in embarrassment and threat for the individual. Hence, the individual resorts to engaging in quality-threatening behaviour as a defence mechanism.

This individual defensive reasoning gains an acceptance or even becomes a requirement of organisational practices and policies. Organisational defence mechanisms are created by individuals within the organisation (although not formally sanctioned by the organisation) in a manner that is consistent with individual defence mechanisms (Argyris 1990a). Organisational defensive routines have been defined as 'any routine policies or actions that are intended to circumvent the experience of embarrassment or threat by bypassing the situations that may trigger these responses' (ibid., p. 505). These routines become an 'underground' management system, embedded in the organisation and unaffected by individual change within the organisation (Argyris 1990b). Argyris (1990a) provided examples of mixed messages, i.e. messages that are simultaneously precise and imprecise, as an organisational defence mechanism. The mixed messages given by audit firms to the audit team regarding the need to meet conflicting cost and quality objectives constitute an organisational defence mechanism (Sweeney and Pierce 2006). Audit partners' ambiguity in relation to sanctions against those found guilty of engaging in quality-threatening behaviour and partners' tolerance of such behaviour in less material areas (Pierce and Sweeney 2005) also constitute organisational defence mechanisms.

Argyris (1990b) pointed out that defensive routines are contrary to productive reasoning (which includes defining premises as clearly as possible; making inferences explicit; and developing conclusions that are publicly testable and independent of the logic used by the individual engaging in the reasoning) and are based on bypass, confusion and mixed messages. The gaming behaviour that results from the defence mechanisms is both favourable and unfavourable for the individual auditor. It is favourable in that the individual is protecting his or her own interests. It is unfavourable in the sense that it is necessary to engage in the behaviour and cover it up. Previous findings that reported perceived auditee influence over quality-threatening behaviour (Sweeney and Pierce 2004) and low risk of detection of the behaviour within the audit firm (Pierce and Sweeney 2006) suggest that some kind of at least tacit auditee support, compliance or acquiescence may be present to enable the defence mechanisms to operate effectively. No previous research has investigated the possibility that defence mechanisms may operate across organisational boundaries. The behaviour of auditees in dealing with audit staff may include the employment of defence mechanisms to protect the auditee from embarrassment or threat. Auditee embarrassment or threat may arise from actions of the auditors that uncover deliberate or unintentional errors. Auditee defence mechanisms have not previously been examined in the literature.

The degree to which auditee staff perceive that they are in a position to influence the behaviour of the audit team and auditor controls over the audit team should provide further insight into defence mechanisms of both the auditor and auditee. The objective of the study is therefore to examine the nature of, and motivation for, influence that auditees perceive they exercise over auditor controls and over one form of audit team defence mechanisms (namely, quality-threatening behaviour).

3. Research method

Semi-structured interviews were carried out with 18 auditee staff from seven publicly-listed companies in Ireland. The interviews, each lasting approximately 50 minutes, were all held in the offices of the companies and were carried out jointly by both researchers in 2006/07. The companies were selected from a range of industries, covering both service and manufacturing sectors (see Appendix 1). A contact in each of the companies was approached by the researchers and asked to arrange a number of interviews with members of their staff who dealt, on an ongoing basis, with an audit junior or audit senior on the external audit team. The interviewees were all qualified accountants and had senior roles in the companies' finance departments (see Appendix 1), interacting with an external audit team from one of the Big Four firms. Where a number of interviewees were from the same company, they were based in different divisions or sections. Therefore all interviewees dealt with different audit staff during the audit. The number of interviewees was determined during data collection at the point at which no new insights were being obtained from interviewees and saturation (Lincoln and Guba 1985) was reached.

The relevant extract from the client interview schedule is contained in Appendix 2. The design of the interview schedule was based on the literature reviewed. The schedule contained questions on auditees' perception of influence over audit staff controls, perception of level and cause of audit team time pressure (to assess auditee awareness of conflict faced by audit staff and possible opportunity to influence quality-threatening behaviour), perceived influence of the auditee over time pressure (linked to suggested auditee influence from previous literature on quality-threatening behaviour), awareness of quality-threatening behaviour and perceived influence over such behaviour.

The types of behaviour discussed during interviews were sensitive, in the sense that they could not be openly discussed and, if detected, could result in serious consequences for those found to engage in them. Social desirability bias can distort the information gained from self-reports of socially sensitive issues (Sudman and Bradburn 1974) and use of informer measures has been advocated as a method of reducing this bias (Sherwood 1981). To reduce the risk of deliberate bias and to help gain the confidence of interviewees, we framed some of the questions (auditees influence over time pressure and quality-threatening behaviour) in a manner that asked interviewees about their perception in general, rather than their personal experience. Validity issues arise in the context of informer measures as to whether they are measuring a different construct (Fisher 1993). An auditee's perception of general auditees' behaviour and attitudes may be based either on the auditee's personal experience or other auditees' experiences observed by the auditee or recounted to the auditee. Auditees may perceive their own level of honesty and capability to influence auditors as greater or less than such qualities in other auditees. It is not possible to disentangle the influences on perceptions of auditees in our study. This constitutes a limitation of the study.

In five cases the interviewees indicated that they had personal experience of specific situations directly relevant to the study. By moving from the general to the specific in this way, we gained the confidence and trust of these interviewees and obtained some very valuable insights, as evidenced by quotes extracted from some of the interviews. It must be acknowledged however that, notwithstanding the detailed and specific examples of situations and behaviour set out by the five interviewees (four of whom were ex-auditors), we cannot ascertain with certainty whether or not they actually influenced the auditors. We acknowledge this by presenting the evidence as their perceptions of their influence.

Interviews were taped and transcribed. Recommendations for data analysis in the literature (e.g. Patton 1990, Miles and Huberman 1994, Lillis 1999) were followed in the coding and analysis of the data. Initial codes on the general areas of investigation were developed before the interviews commenced and these codes were refined as the interviews progressed. NVIVO (a software program for analysing qualitative data) was used to organise the findings. Pattern analysis (Miles and Huberman 1994) was used to draw and verify conclusions. This commenced during data collection. Following each interview the researchers sought to identify the main patterns arising. Adding evidence to confirm a pattern, and being open to evidence that contradicts it, is important in forming conclusions as it helps protect against providing unreliable evidence (Miles 1979). As suggested by Miles and Huberman (1994), the researchers searched for negative evidence that might contradict any of the conclusions reached in the analysis and also checked that the evidence backing up each finding appeared to be reliable. In presenting the findings, sentences that appeared to represent a particular code or theme were used to present the 'thick description' (Denzin 1994, p. 505) in section 4 (Findings). Anonymity is preserved by referring to interviewees using the numbers shown in Appendix 1.

The limitations of the study need to be considered in interpreting the findings. First, it is possible that social desirability bias may have influenced responses. Interviewees may, for example, have understated their perceived degree of influence over the auditors' behaviour. The opposite effect may also have occurred and respondents may have been overly confident in their perceived degree of influence over auditors. As a result of the sensitive nature of the topic, informer measures (where interviewees were asked about the behaviours of others) were used for auditee influence over time pressure and quality-threatening behaviour. As discussed above, this constitutes a limitation of the study. At the start of each interview, interviewees were assured of the confidentiality of the study and the fact that neither they nor their companies would be named in the research. In general, a good rapport was developed by the researchers with the interviewees, all of whom appeared to engage fully and openly in the interviews. The researchers took all reasonable measures to ensure that under- or over-statement did not significantly distort responses. Second, the findings in the study are based on perceptions of a relatively small number of auditees. There are several variables that may have influenced interviewees' perceptions, such as the composition of the audit team, the length of tenure of auditors, the industry expertise of the auditor and characteristics of the auditee. These factors were not taken into account in the study, as the views obtained from each of the interviewees were based on their overall experience from dealing with audit teams and were not related to any one specific audit team. As all of the auditees were publicly-listed companies audited by a Big Four auditor, it would be expected that the general composition of the audit teams in terms of mix of experience would be similar across these companies.

Lastly, interviewees within each company were selected by a member of the auditee management with whom we had initial contact and who was requested to arrange interviews with a number of auditee staff who had ongoing contact with the audit team. Auditor–auditee relationships are complex as a result of the number of individuals involved (Hellman 2006) and it cannot be ascertained with certainty that those selected were the most relevant auditee staff. It is possible that some members of auditee staff may have declined to be interviewed. However, only limited information was given in advance regarding the detail of the interviews. The subject of the interviews was described only in general terms as auditee interactions with the audit team. No mention was made prior to the interviews of potentially sensitive issues such as the behaviour of the audit team or the influence exerted by the auditee.

4. Findings

The findings are divided into the following main themes: perceived influence over quality-threatening behaviour; perceived influence over the control system; and justifications for influence.

4.1 *Perceived influence over quality-threatening behaviour*

The degree to which interviewees maintained that auditees could influence auditors varied, with the majority believing auditees could do so to some degree. Generally, ex-auditors perceived auditees could influence auditors to a greater extent than did other interviewees. Eight out of 10 ex-auditors were of the view that 'they [auditors] are not going to really be able to find things if you really made any effort to disguise them ... you could certainly sway the team on the ground away from certain areas' (2). Five ex-auditors were very confident in their ability to conceal information from auditors and referred to specific personal examples where they had done so, although in general, it was felt that 'there is not huge evidence of it' (2):

> We have had other things that I did hide on them this year and potentially quite serious things, but they're things that we know about and we'll sort out, [they were] to do with our superannuation fund ... but I was quite easily able to hide it from them ... potentially it's material ... I just didn't want to get into it and we knew what needed to be done ... but there's something that they missed (7).

Eight other interviewees (of which six were non ex-auditors) were not as confident in the ability of auditees to influence auditors and maintained that 'it would be very difficult for a client to sort of actively say right we need to hide this from the guys' (15). At the same time, it was acknowledged that 'if someone is very persuasive they might be able to persuade them' (6).

Examples of opportunities for direct auditee influence over quality-threatening behaviour were provided by 12 interviewees, particularly ex-auditors. Auditees perceived that the audit team could be directly influenced into biasing sample selection, over-relying on auditee work and accepting weak auditee explanations. Opportunities to influence auditor sample selection included situations in which some files might have been archived and a member of auditee staff said, 'it will take me a couple of hours to dig that out, whereas I have the file for the second half of the year here. They might go down that route or they might take my suggestion on board' (14). Inventory counts were also mentioned as an area where the auditee could influence the auditor's choice of inventory items to count. A personal example of auditee influence in biasing sample selection was provided by one interviewee (not an ex-auditor), where 'in the sample [invoices] of say the four that they [audit team] had picked, you know we couldn't find three of them and so I got them to take three other ones and they did' (6). Allowing the auditee to select the sample in advance of the auditor's visit was also mentioned as an area 'that could potentially obviously be open to manipulation because you will pick ones that will work' (14). Regarding opportunities to influence degree of reliance on auditee work, whereby auditee staff prepare worksheets for auditors, it was thought 'you could certainly group things together in such a way as to throw the auditor off a bit ... I think the more that they would go for client prepared sheets and the pressure is on in that direction from the point of view of fees, I think the more the company could influence them' (2). One interviewee provided the following first-hand example of auditee influence on working papers and maintained that the auditee influence was positive as both parties had common objectives and would gain from the cooperation:

> There was a guy [auditor] and we got on very well with good fun and all the rest but I helped him write the thing [working papers] you know... subsequently some of the other auditors said 'I'm not sure if I should be showing you this' and I said well listen you can show it to me because a) I've seen it before and b) I've actually written it for the guy. But it was in my interest and it was also in his interest because we could put things the right way; he might not be aware of what you might read into something whereas we can put a very specific story. Now this is where we would be working with them to identify the specifics about an issue, not when we're trying to fob things off (7).

Opportunities for direct influence over auditor behaviour also arose when auditors requested an explanation for a particular transaction. Various examples were given of cases where weak auditee explanations were accepted in circumstances in which auditees 'expected a more eager challenge' (15), such as a complicated leasing transaction where a simple explanation was given and the auditee staff member 'was delighted [they accepted it] because it saved [the auditee] three weeks of explaining to them' (1). Analytical review was also mentioned by a number of interviewees as a procedure that auditors carry out 'in a very cursory fashion and you could really fob them off with anything and they will go away' (2). Also referred to were inventory counts, where auditors are generally reliant on the auditee's estimation of quantity and value for particular inventory items. In general, it was felt that 'if there is a kind of a fairly bland response to their questions it generally means it goes away' (9) and 'you tell them the truth but it's a half truth or you wouldn't give them all the information and you'd wait to see would they ask the second question and they don't' (11). This was perceived to be a significant risk from the auditor's perspective as it is 'very easy as a client to give a short answer because it makes them go away' (1). This and other findings on justifications for client influence are presented in section 4.3.

4.2 *Perceived influence over the control system*

In general, interviewees perceived that they had little direct influence over the auditor's control system. However, they did perceive that they were in a position to exploit weaknesses in the control system, which could in turn influence the auditor's behaviour. The main control areas on which auditees focused were: calibre and experience of the individual auditor; time constraints; and the audit process (incorporating audit methodology and audit review).

4.2.1 *Calibre of staff*

The calibre and experience of the individual auditor was identified by interviewees as a key control area for audit firms. While it was felt that requesting the inclusion of certain staff in the audit team could backfire, as 'obviously we can't be dictating to them who they put in their audit and you know we need to be careful that we are not seen to be designing an audit team that will give us an easy ride for example' (1), auditees in general perceived that they could exploit any weaknesses in this aspect of the auditor's control system.

Auditees maintained that they had developed an intuition for identifying weaker members of the audit team, as some of the auditee staff had considerable experience of 'listening to auditors for twenty years' (8) and 'know all the tricks of the trade' (2). They would get an 'immediate feel as to the understanding of the people who are doing the audit ... the type of questions that are coming' (9). This ability to 'pick up the radar fairly quickly as to what kind of person they are' (8) and recognise weaker or inexperienced auditors provided the auditee staff with an opportunity to influence the audit team:

> If you know that they don't know very much about what you're talking about then you've got an advantage in having a lot of influence … you might have somebody who really will not let go of something but you know, you will know that person, you'll kind of assess quite quickly that kind of auditor. So you'll kind of know, well I'm going to have to try and give this person quite a bit in order to satisfy them and they might still come back but you know with someone else, I'll just tell them … the minimum I need to tell them and they'll probably be happy enough with that … you do find particularly with junior auditors that they are not going to be that knowledgeable (5).

Even ex-auditors who were confident in their ability to influence the audit team were very aware of the limitations of their influence where this control was strong and referred to the possibility of 'a bright spark' (2) on the audit team. It was considered that where there was 'somebody [an auditor] who's capable, who's persistent and who's asking you early, you know you've less chance of getting away with it' (7). This interviewee gave an example of an instance where there had been a lot of auditee corrections in the accounts for the month of May and when the auditee tried to persuade the auditor not to select May, 'the more he insisted on picking May, and he was a particularly pernickety individual, and so I had no chance of persuading him at all' (7). Gender and nationality of the auditor were mentioned by one auditee as impacting on the level of probing. Females and non-nationals were considered to have better probing skills.

Two different problems with the calibre of staff were identified whereby 'one, you could have weaker [audit staff] or two, practically inexperienced [audit staff]' (18). The result of either of those problems was perceived to be lack of understanding of the business. It was suggested that, 'if you don't have the richness behind it of the client's business, … it's easier to maybe skirt an issue … the probing may not be as deep' (14). In addition, auditees were of the view that the rationale behind the audit work was not explained to audit juniors and 'it's a little bit of point and shoot rather than giving them the full picture' (9).

In addition to the calibre and experience of the individual, the short length of time the auditors were present on site was mentioned as a weakness in the control system impacting on their understanding of the business. One auditee gave an example of a personal instance whereby an auditor mistook an inventory item (a fertiliser called 'ten ten twenty') for a date and had no idea of the value of the fertiliser.

In general, auditees did not appear to assess the calibre of auditors as being very high, although one auditee (who was not an ex-auditor) mentioned how her assessment of auditors had improved:

> I've never done auditing myself … in the beginning when I started dealing with auditors I kind of thought, these guys are never going to pick up anything because like they are just so wide of the mark and they just seemed to be ticking stuff all the time, whereas now I've come to find that I kind of think, yes they do know what they're talking about … they seem to be able to home in on the things that matter obviously and the material ones as well (6).

The importance of the materiality of the area was supported by other auditees and it was perceived that 'irrespective of the person … the key items will still be produced' (4). Even though interviewee 6's assessment of auditors in general had improved, she questioned the ability of audit juniors to recognise key areas:

> the audit seniors or the managers seem to let them [juniors] off and say sink or swim . . . I find that a lot of juniors who come in have no idea of the business . . . like they come in with these questions and you kind of say, 'well why are you asking me this; what are you trying to get at' and like they just don't know. They just have a question that they've been told to ask you.

The calibre of staff was thought to influence 'whether they will accept any hogwash or whether they stick with it and follow it up' (2). Opinions varied as to the frequency with which weak explanations were accepted. In general, ex-auditors felt that it happened more frequently than did other interviewees who were not ex-auditors, and one ex-auditor maintained that, 'within any three individuals who come into the place, you'll always get one that you could tell them anything' (2). Other non ex-auditor interviewees mentioned it happening 'occasionally' (18) and that auditors rarely 'just accept the first answer you throw at them' (12). Low calibre staff were thought to lack confidence and knowledge, and it was pointed out that this could impact on the quality of work, as audit staff feel intimidated by the knowledge of the auditee:

> Auditors aren't necessarily confrontational by nature, that's just the breed that are attracted to accounting; now I am not saying everybody but a lot of them can be like that and in some cases they really just want to have something for their file . . . you know if you just stand your ground for five seconds and it goes back to the earlier point about technical knowledge about the industry; if an auditor is coming in to you and they are reading something that was picked up last year and they're not really sure of their own ground, you know they are going to feel very stupid and very exposed if they go too far down a particular line of questioning with a client (8).

It was thought that auditees could exploit any weaknesses in the calibre and experience of staff by their demeanour. Argumentative auditees who have an understanding of the audit process were thought to be particularly difficult for auditors to deal with as they had knowledge of both sides of the audit relationship:

> You could get a bargie [argumentative] client who'd say 'you don't need to worry about that, that's not material, what's your materiality level, show me that piece of work that you've got there, if that's your outlook it's only 2% of that' or whatever happens to be, a small total in the overall context; it does take a strong enough assured person to stand up and say, well I don't quite follow that (14).

In situations where auditees were reluctant to devote time to dealing with the auditor and adopted a 'less friendly' (10) stance, it was also thought to affect the likelihood that audit staff would be diligent in their work. In contrast to a 'less friendly' stance, one auditee referred to a situation where he knew the team members personally, as the audit was carried out by a regional office of a Big Four firm in a smaller town. He believed that this had an impact on his ability to influence the audit staff as they were more willing to accept his explanations.

The confidence of the auditee was also mentioned and where auditees were less confident they were conscious that auditors may perceive their efforts to influence the auditor as an attempt to 'divert them away from something' (12). However, other auditees were more confident and maintained that, 'I would normally think that my explanations would be convincing enough so that they wouldn't necessarily know that they were taking a short cut' (13). These confusing signals, where auditees are trying to convince the auditor that they are cooperating but are subtly manipulating and discouraging further audit work, are examples of mixed messages in the context of auditee defence mechanisms.

4.2.2 *Time constraints*

Auditees were very conscious of the time pressure under which the audit team work. Auditees perceived that they were in a position to influence the level of audit team time pressure through auditee-imposed deadlines, the level of preparation by the auditee for the audit and the availability of information from the auditee. All interviewees agreed that auditees set deadlines that increase the time pressure on auditors. Auditees were perceived to add to the deadline pressure and create incentives to engage in quality-threatening behaviour if they were not prepared:

> If as a client you are not well prepared, or your accounts are in a bit of a mess, or the records are in a mess, that obviously is going to be an incentive for the audit team to take shortcuts to try and get the job [audit] done (1).

Lack of availability of information from the auditees until closer to the end of the audit was thought to also add to deadline pressure:

> Another tactic you can use is, well if they don't ask for a date, well look there's four weeks to go, the more time that goes along the less time they have to delve into something so fobbing them off that way, 'oh yes I must do that for you I'm really sorry, yes', you know you can spin them on and I've done that as well and it has worked, there's no doubt about that (7).

However, this was perceived to generally trigger audit management involvement, which would increase pressure on the auditee and was not seen as desirable from the auditee's perspective. Interviewee 7 stated 'they do tend to report quickly up the line on these sort of things'. While time pressure generally presented opportunities for auditees to influence the audit, it was also pointed out that such pressure could result in demands by audit staff for immediate follow up of their queries, thereby reducing opportunities to control the availability of information. In situations where auditors were prepared not to follow up work as a result of time pressure, it was considered 'a good test actually for them . . . if it drops off the end of the page, it obviously wasn't a huge show stopper at the end of the day' (14). The more material areas were considered the 'show stoppers' and, regardless of time pressure, it was felt that auditors would follow up on the work in those areas. In the less material areas, reduced volume of work could lead to opportunities for the auditee to influence the level of probing where information is not made available to the auditors until the end of the audit. The ability of audit staff under time pressure to assess risk and materiality was questioned by interviewees and it was thought that 'it's really very difficult for an auditor in that situation to really have a view you know good, bad, or indifferent on what the real risk areas might be. You might find some of them [risks] but you sure aren't going to find them all' (8).

4.2.3 *Audit process*

Perceived weaknesses in the audit methodology and review process used by auditors were thought to result in opportunities for auditees to influence audit team behaviour. All auditees were aware that auditors have 'an indeterminable number of checklists for various things which they go through with us for various aspects of the process' (1). This box-ticking mentality was thought to increase the opportunities to influence auditors as it detracts from understanding the business and is 'kind of mind numbing for the people filling them out' (1). It was perceived that, when auditors received an explanation from the auditee, their attitude was 'that's grand, like as if the box is ticked, now we move' (11).

Reliance on the prior year was mentioned as an important part of the audit process. Some auditees felt that the prior year was followed too closely without taking into account changes in the business in the current year and that there was scope for improvement in planning an audit. One auditee commented that there were times when all parties were 'going through the motions and where it does kind of lessen respect for the process' (7). He cited an example where auditors 'recommend that there's continued focus on this area; we will give continued focus to this area, so like we're all happy now, bye-bye' (7). While this interviewee had previously given personal examples of his success in influencing auditors, he was now blaming auditors for not generating valuable output from the auditee's perspective. His failure to question his role in contributing to auditor output appears to be part of the organisational defence mechanisms employed by auditees whereby confusion, cover-up and mixed messages are the norm.

Some changes in the audit process were perceived to have weakened the ability of auditees to exert influence over the auditor. For example, there was some evidence that the change in the audit environment following major corporate collapses was perceived to have decreased the likelihood of accepting weak client explanations, as auditors were 'less likely to accept a woolly explanation than they might have been five years ago before we had all the Enrons' (15). The increased demand for documentation on audit files was felt to have limited opportunities for offering weak client explanations. An example of greater documentation is auditors requesting documentation for figures that had remained the same for 20 years. From the auditee's perspective, auditors were now demanding more evidence that auditee controls operated as intended and the working papers contained greater detail for audit management to review. Interviewees recognised that these changes in the audit method had implications for their behaviour and the importance of minimising the need for audit management attention on their area was emphasised:

> [If the review is good] the client will be less likely to give that kind of steer because they certainly won't want to be caught out by the [audit] manager who maybe has been out here four or five years and knows what's going on and they'll know that if the [audit] manager isn't happy with it here that the financial controller or someone else might find out about it (8).

Where the review process was effective, it was maintained that the partner knows 'that doesn't sound right or whatever, that's not deep enough, go ask again, that sort of thing, it comes back then but sometimes you just get away with it' (11). Linked to the effectiveness of the audit review was the frequency of client influence:

> If it was just a one off thing yes, definitely [the client could influence] but if it was something that you were trying to do consistently and get away with it from year to year, I would feel that a manager review would eventually catch you out (2).

The rationale behind the audit methodology was perceived to be the allocation of greater time to the riskier and more material areas. It was thought that the auditee would have opportunities for greater influence over the less material areas, as was noted under the sections on calibre of staff and time pressure. This perceived opportunity for influencing behaviour by auditee staff in less material areas is consistent with the perspectives of audit partners (Pierce and Sweeney 2005), audit seniors (Sweeney and Pierce 2004) and audit juniors (Lee 2002) on opportunities for audit staff quality-threatening behaviour in less material areas. Lee (ibid.) maintained that confining irregular auditing to less material areas demonstrated a commitment by juniors to the audit protocol. This mechanism for managing cost/quality conflict in less material areas appears to form part of the organisational defence mechanisms, whereby an underground management system exists for dealing with cost/quality conflict that is not formally sanctioned by the audit firm or auditee.

4.3 *Justifications for influence*

The researchers asked an open-ended question regarding why auditees would seek to influence auditor behaviour. A major justification provided by interviewees was a desire by the auditee to minimise disruption and time input during the audit; it was considered that this was part of human nature rather than deliberate manipulation of behaviour. It was felt that 'it's a natural client reaction "I want to get it done and get it over with as quickly as possible", so they will try and make life easy' (9). Influence, as a form of cooperation and auditor assistance, was also mentioned and the mutual benefits of this for both parties were emphasised. It was understood that auditors 'have to have something to write down' (15) and that 'it's our goal to get a clean audit report or as clean as possible' (13):

> I would ask them 'Would you like me to select a sample for you which I can do in advance of your visit so they are here for you?' Now most of the time they would say yes they would, they would take a sample but they would add a sort of rider with that one that well if they weren't happy with that sample they'd request the right to go back and have another sample taken; which would be fine I suppose; I am just trying to increase the efficiency of it (14).

Auditees emphasised the common objectives that they shared with auditors in completing an efficient audit. It appeared that, even though there were no formal rules governing their interaction, underground management mechanisms had developed between auditor and auditee that were well understood by auditees:

> Somebody [member of auditee staff] comes and says 'ah you know that'll be very difficult; let me tell you now we're going to get through this business before you go' and the client will actually push them to a different direction (9).

Argyris (1990b) referred to an employee who maintains that he or she is just trying to be helpful when in actual fact he or she has an alternative agenda, as an example of a defence mechanism. Auditees maintain that they are just trying to increase efficiency but are likely to also have an alternative agenda of avoiding embarrassment or threat by ensuring a trouble-free sample is selected. Auditee cooperation was thought to be particularly needed in dealing with legal documents. During the audit review process:

> The senior would come back down with their review comments and sit with me and we would go through the file and decipher what the manager was looking for after it had been reviewed (10). You have a flurry of activity, you then get into a review process within the firm, of which they [audit management] say, 'go off and find out a bit more about these or maybe challenge the idea here', and the challenge turns into a question [to the client], which is 'can you give us some back-up, I [audit trainee] just want to get rid of this point' (9).

Interviewees maintained that auditees would not exert influence 'to the overall detriment of the quality of the audit' (13) and that this was not a motive for the influence:

> I mean, we tend not to be fobbing people off on, say very critical things, that are very material and so on but there might be things that you don't want to open a can of worms for . . . I'll sort this out but the last thing I need now is five management letter points . . . so certainly there would be people that you'd

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> know you'd get away with more but generally speaking if something is material the chances are they will stumble over it.... To a degree, a sort of a bond does form where, look, we have a mutual interest between us. Look, you don't squeal on me and I'll look after you, sort of thing.... There are some people that you will have a greater empathy with and where maybe at an earlier stage you have developed a good relationship with them and where they trust you and you're happy, particularly in a case where you've nothing to hide anyway so when it's that, you're only interested in working your way through it (7).

In an examination of auditor independence, Moore *et al.* (2006) maintained that, 'the majority of professionals are unaware of the gradual accumulation of pressures on them to slant their conclusions – a process we characterise as moral seduction' (p. 11). They argued that conflicts of interest 'can occur without any conscious intention to indulge in corruption' (p. 16), and suggested that 'many behaviours in the realm of conflicts of interest begin as minor questionable calls that sometimes escalate into violations of ethical standards and the law' (p. 17). Moore *et al.* predicted that individuals will engage in actions whose appropriateness is ambiguous before they engage in unethical actions, as this is easier to justify to oneself, and suggested that accountability demands will encourage the selective generation of justifications for actions taken. Hence, unethical actions are more likely to occur when individuals can rationalise the behaviour to themselves as being moral. These findings suggest that auditee staff rationalise their behaviour as being helpful and ignore the quality-threatening aspect of their behaviour.

The similarity between the views expressed by auditees in this study and the perspectives of audit seniors reported in earlier research is striking. For example, in the context of the audit environment, Pierce and Sweeney (2006) reported that audit seniors rationalised their dysfunctional behaviour by asserting that they would only cut corners in areas of the audit which they themselves deemed immaterial, without checking with a higher authority regarding materiality. Auditee staff who participated in the current study used almost identical logic. The contradictory nature of this statement lies in the fact that auditee staff would not normally have knowledge of audit materiality levels, and this was confirmed by some of the participants in this study. Nevertheless, it was perceived that auditees were prepared to make their selection of those areas where they would seek to influence the auditor, based on their own assumptions regarding materiality. Although their actions were not based on solid information, their stated intention was similar to those of audit seniors revealed in earlier studies, that is, to cut corners in the conduct of the audit without running the risk of missing material items. In so doing, they were demonstrating clear characteristics of organisational defence mechanisms operating across organisational boundaries.

It was pointed out by interviewees that it is in both parties' interests to get through the work and that there was a certain level of understanding with auditors whereby 'we are all, not buddies, but at least, we are not going to show each other up in any manner. We are not going to cause them trouble and they are not really going to cause us too much trouble either' (2). Cooperation between auditor and auditee was considered beneficial for both parties and could improve the audit working papers. In general, audit staff were perceived as being very fair and considerate, and 'they don't want to put undue pressure on people for something that at the end of the day will not even either prove or disprove something' (3). This suggests the development of a common identity (Moore *et al.* 2006) between auditee and auditor staff and an implicit understanding of mutual pressures that did not appear to be openly discussed. This development of a common identity is likely to pose a threat to auditor independence, because maintaining 'emotional distance' (Gendron *et al.* 2006) may become problematic for individuals who identify with each other. As Rennie *et al.* (2010) pointed out, demonstration of concern has been found to be an antecedent of trust. They found that demonstration of concern by an auditee for an auditor during a disagreement had a positive impact on trust. While our study does not specifically deal with disagreements, demonstration of concern by the auditee for the difficulties experienced by the auditor in conducting his or her work is likely to increase the trust of the auditor in the auditee.

However, the interests of these parties were not always aligned and auditees did not appear unduly concerned regarding a possible adverse impact of their influence over audit work. They considered that they had completed all necessary work for their purposes and they did not have any obligation to consider if this work was sufficient for the auditors:

> You don't want to fob them off but at the same time you are trying to get through this process … because as far as you're concerned you've done enough analysis for whatever you need … in terms of influence, yes I think you can, you know you place the burden on them to make sure that they know or find enough out in order to understand the issues involved (5).

This suggests that auditor and auditee staff demonstrated mutually supportive behaviour in striving to meet common objectives. The supportive behaviour did not however extend to addressing auditor objectives that were not shared by the auditee. Auditee staff appeared to give mixed signals to the auditor, in that they offered support with an expected payback of supportive auditor behaviour but at the same time they accepted no responsibility for potential adverse impacts of the supportive behaviour on the audit team's work.

5. Discussion

The study provides insights into a number of important areas, including the operation of inter-organisational defence mechanisms, the identification of auditee-related variables impacting on the effectiveness of the auditor's control system, and the benefits for both auditee and auditor staff members resulting from inter-organisational defence mechanisms.

5.1 *Inter-organisational defence mechanisms*

The findings help illustrate the complexity of the relationship between the auditor and auditee, and the subtleties of the distinction between auditee cooperation and auditee influence. The audit team and auditee staff share a common purpose of completing the audit in a timely fashion and avoiding any embarrassment or threat for all parties involved. However, objectives also diverge and auditee staff are not concerned with whether the audit team have completed sufficient audit work to form an audit opinion. It would be expected that the audit team would not be overly concerned regarding avoidance of trouble or bother for the auditee. Auditee staff and the audit team recognise the need for subtle signals to assess the alignment of common objectives.

In meeting auditee objectives that are divergent from auditor objectives, perceived weaknesses in the control systems and the auditee's ability to influence the control system were considered important. As a result of weakness in the calibre and experience of the audit team, auditee personnel in general perceived themselves as the more powerful party in the relationship with the audit team. They felt they could 'pick up the radar fairly quickly' (8) as to the type of auditor with whom they are dealing. They perceived that auditees had considerable scope to influence the auditors. In general, it was felt that individual auditors lack confidence and knowledge of the business. However, auditees recognised that they can get caught out by a 'bright spark' (2), which can cause embarrassment for the auditee staff. Auditees were very aware of the audit review process and, in making their assessment of opportunities to employ defence mechanisms, they weigh up the perceived effectiveness of the auditor's quality control system. The impact of changes in the control system on the auditee's ability to influence audit staff was also recognised by interviewees, an example of which is the decreased opportunity to offer weak explanations to audit staff following the increases in audit file documentation.

The auditee presents the individual auditor with a method of coping with cost/quality conflict by accepting auditee 'help'. Consistent with audit seniors' views reported by Sweeney and Pierce (2004), there is evidence that the auditee participates in the gaming behaviour (quality-threatening behaviour) by influencing the auditor's testing through timing of delivery of information, level of preparation for the audit, availability of auditee-prepared schedules, their own approachability and their influence on time pressure. The relationship between the member of auditee staff and the auditor is influenced by the auditee's assessment of the auditor's skill, personality and judgement, and the auditee's knowledge of the audit process. In this context, the background of the auditee staff member is also important, specifically whether or not they are an ex-auditor. This is consistent with previous research on auditor–auditee negotiations (Bame-Aldred and Kida 2007) and audit seniors' perspectives of quality-threatening behaviour (Pierce and Sweeney 2006). Although Francis (2004) referred to the greater risk of deception by auditee staff who are accounting firm alumni, evidence from this study suggests that the degree of influence exerted by the auditee is associated with whether the individual auditee staff member is an ex-auditor, rather than specifically an alumnus of the specific audit firm of that auditee company.

The auditee plays on the perceived weaknesses in the auditor's control systems, where it is perceived that inexperienced auditors lacking a deep understanding of the auditee's business and, without direct supervision, complete an audit programme ('mind-numbing checklists') under severe time pressure. The game playing engaged in by auditee staff can be seen as an organisational defence mechanism (Argyris 1990a, 1990b). The findings from this study provide the first empirical evidence of defence mechanisms that operate across organisational boundaries. The game-playing behaviour of auditee and auditor staff appears to have become accepted by both parties to avoid embarrassment and threat. The logic used by auditees to justify the game playing is contrary to productive reasoning, being based on bypass, confusion and mixed messages. Consistent with Argyris's characterisation of organisational defence mechanisms, the game-playing behaviour appears difficult to challenge as it is subtle and does not appear to be openly discussed.

5.2 *Gaming gains*

Engaging in organisational defence mechanisms to influence auditors and to bypass and cover up shortcomings in audit work has advantages for both auditee and auditor. From the auditor's perspective, accepting 'suggestions' put forward by auditee staff helps alleviate time pressure, increases the efficiency of testing and allows the auditee to 'put things the right way' (7), thereby reducing the likelihood of misinterpretation and time wasting on the part of the auditors. When auditors are directed to an area where the auditee staff would like them to focus, this helps satisfy the auditor's search for recommendations to include in the annual management letter and ensures they 'have something to write down' (15). Defence mechanisms are likely to be more advantageous for the auditee and the auditor where the auditor is of low calibre or less experienced and is thus likely to be more accepting of 'assistance'. From the auditee's perspective, advantages include the ability to direct the auditor away from awkward and troublesome areas, use of the auditors 'as a stick' (7) to enforce or legitimise actions in other areas, reduced time input required from the auditee, and reduced likelihood that they will be embarrassed or threatened by any potential shortcomings in their own work. The nature of the gains therefore can vary from saving the auditee from unnecessary time input to covering up substandard work by the auditee.

Previous research has pointed to a compromise in auditor independence when a common identity is developed between auditor and auditee (Moore *et al.* 2006) and the ease with which group identity in general can be established, leading towards favouritism towards fellow group members (Tajfel and Turner 1986). Both parties are aware of the risk of detection through the auditor's formal control system but clearly develop a high level of confidence that their common identity will successfully exploit weaknesses in the formal system, deliver gaming gains and remain undetected. Central to this common identity is a high level of trust that the illicit behaviour will not be disclosed to other parties, either within or beyond auditor and auditee organisations. It is particularly notable that this level of trust is established, despite the fact that direct auditor–auditee interaction is limited to a relatively short time period and also that, although continuity is maintained in membership of the audit team, there is usually some element of staff turnover. This is consistent with the idea of organisational defence mechanisms as these mechanisms operate independent of changes in individuals in the organisation (Argyris 1990b). With the relatively rare exception of when the audit team includes a 'particularly pernickety individual' (7), the general consensus was that the majority of the auditors do not want to put 'undue pressure' (3) on auditees and are in agreement regarding appropriate behaviour. Individuals can become deadened to the ethical implications of their actions through moral seduction (Moore *et al.* 2006) and fail to question the appropriateness of their common identity.

6. Conclusion

The findings in this study have a number of implications for society, audit firms and researchers. Implications for society are linked to differing perspectives on the importance of audit fieldwork in contributing to the objectives of independent audit. Power (1999) referred to an audit explosion in recent years, as a result of which we have moved 'towards a society that trusts nothing and audits everything' (Pentland 2000, p. 307). However, the 'deep epistemological obscurity' (Power 1999, p. 28) of auditing that increases the difficulty of monitoring auditors suggests that society has no option but to trust auditors at some level regardless of the number of layers of regulation and monitoring imposed on auditors. Given that audit juniors and seniors perform the majority of the audit fieldwork, the findings in this study raise issues regarding the credibility of the audit process and question the extent to which society is placing its trust in inexperienced auditors who are under extreme time pressure to complete detailed checklists and who have only a superficial understanding of the business of the auditee. If, however, fieldwork is deemed relatively unimportant in forming an audit opinion, these findings are less significant. For example, Fischer's (1996) study pointed to evidence that two audits may be conducted by audit firms (one by the audit staff, which is concerned with complying with rules, and one by the partners and managers, which focuses on the risk areas and is where audit assurance is obtained). If this 'double auditing' occurs, weaknesses in one of the audits are less of a concern.

The findings also raise issues regarding the structure of audit firms and skills of audit team members. The current hierarchical structure of the firms relies on assigning structured work to inexperienced staff to achieve above-average profits (Morris and Empson 1998). The study provides further evidence of difficulties associated with this hierarchical structure in the adoption of new audit methodologies involving greater judgement and ambiguity, such as the business risk audit (Curtis and Turley 2007), and on relying on inexperienced auditors to audit the work of more experienced auditees (Gendron and Spira 2009). Consistent with Gendron and Spira, the findings also suggest further problems arising from the asymmetry in knowledge between the auditee and the auditor, whereby auditees 'know all the tricks of the trade' (2). The expectations set by society for audit firms and what society is willing to pay for assurance are important issues in debates on the future of auditing.

A number of perceived deficiencies in the skills of audit team members were revealed, such as: lack of probing skills; difficulty in interacting with the auditee as a result of lack of confidence; inability to confront the auditee; and difficulty in balancing auditee cooperation with the need to remain objective. The Audit and Assurance Faculty (2002) pointed to the need for auditors to both remain objective and achieve cooperation from auditee staff. The findings suggest that auditee staff perceive that many auditors are primarily concerned with cooperation in order to 'get through this process' (5). The Audit and Assurance Faculty (ibid.) noted strength of character in dealing with challenging and confrontational situations as an important auditor trait but these findings revealed perceptions of major deficiencies in this area. Previous research suggests that various dimensions of interaction with auditees are emphasised in training courses, such as dress code, promptness and keenness (Anderson-Gough *et al.* 2005). However, the findings in this study indicate that other dimensions of auditee interaction may not receive adequate attention and more effective forms of training for the audit team, possibly involving role play, are needed. The FRC (2006) pointed out that the qualities of perseverance and robustness are important for audit staff when confronted with persuasion and possibly intimidation on the part of auditee management, and that these qualities can be inculcated and enhanced through effective mentoring by experienced partners and staff. These measures, however, do not address the more fundamental issue of the appropriateness of relying on inexperienced auditors to deal with increasingly complex transactions (Gendron and Spira 2010).

The strategic reasoning literature suggests that auditors can reduce the risk of fraud by anticipating auditee behaviour and incorporating this into audit testing (Wilks and Zimbelman 2004). However, evidence in this study suggests that auditees may have motives and opportunities to conceal information and engage in organisational defence mechanisms that are unrelated to any fraudulent activity. As auditees pointed out, it is a natural human reaction on the part of auditees to seek to minimise the effort they put into the audit. Defence mechanisms appear to be employed by auditees to deal with the conflict they face when seeking valuable output from the audit but at the same time minimising their input of time. Previous research suggests that auditee staff (especially those with long experience) perceive auditor control procedures and behaviour to be predictable (Hellman 2006). Where auditees prepare schedules for auditors in advance, the danger exists that auditors can be steered in a particular direction, depending on the presentation of information in the schedules, and that auditors may over-rely on the auditee's work. Previous research indicates that the nature of audit testing does not vary from year to year (Wilks and Zimbelman 2004). The findings in this study suggest that audit firms may need to consider ways of making their audit testing less predictable, in order to help maintain an appropriate balance between auditee cooperation and auditee influence.

The value of qualitative research in offering rewarding insights into the audit practice arena is being increasingly recognised (e.g. Humphrey 2008). This study demonstrates its valuable contribution in the under-explored area of auditee–audit team interactions. There is considerable potential for further qualitative research in this area to go beyond the exploratory nature of this study and examine concepts such as inter-organisational defence mechanisms and auditee defence mechanisms in greater depth. The findings show that the interactions between the auditee and auditor can be positive and negative for both auditee and auditor and go well beyond the previous associations in the literature with quality reductions. Research in this area offers opportunities for a greater understanding of the practice of auditing that has been called for in the literature (e.g. Humphrey 2008). Other opportunities for research on broader issues related to this study, such as the relationship between audit partners and auditees and the consequences of audit firms' structure, offer potential insights into additional aspects of audit practice.

Further research examining data from other countries and a more homogeneous sample of auditees, for example those from one particular industry or those audited by one particular Big Four firm, may provide scope for more in-depth investigation of auditee influence. Audit quality research has suggested that differences in audit quality exist (Francis 2004), and there is evidence of higher audit fees and higher earnings when the auditor is an industry leader, implying higher audit quality.

In addition, the impact of changes in audit methodologies and levels of documentation on opportunities for auditee influence merit further investigation. Given the movement by audit firms to more risk-based audit methodologies such as the business risk audit (Curtis and Turley 2007, Robson *et al.* 2007), it would be expected that the usage of detailed checklists would have declined (although use of business risk audits may have declined since those studies). Further research is needed to examine the degree of structure in audit work at lower levels in the firms and the implications of the audit method for opportunistic behaviour by audit and auditee staff. A further potentially important variable is the extent of documentation of audit testing in working papers. Although a reduction in audit documentation arising from litigation concerns has been noted in the literature (Barrett *et al.* 2005), the findings in this study suggest that audit firms now require increased audit documentation in many areas of the audit and that this was perceived to limit the opportunities for auditees to influence auditors. The appropriate level of auditor scepticism was questioned by the APB (2010) in its discussion paper, and further research is needed on the likely impact of an increased level of scepticism on auditee influence and auditee cooperation.

Future quantitative research examining a more expanded model of quality-threatening behaviour in light of the variables identified in this study is also warranted. Auditee influence over deadlines and over availability of information for auditors have been identified in prior research as antecedents to auditor time pressure (Sweeney and Pierce 2004), and this is supported by the findings in this study. In addition, this research has shown that, not only can auditees affect the nature and level of quality-threatening behaviour by influencing time pressure, they can also directly influence this behaviour by their levels of persuasiveness and approachability. These variables could be considered antecedents to quality-threatening behaviour and also moderators in the relationship between time pressure and such behaviour. The auditee's levels of persuasiveness and approachability are partly determined by the auditee's assessment of the auditor's personality, skill and judgement, the perceived effectiveness of the review procedure, the audit methodology and the previous experience of the auditee as an auditor. Other moderator variables in the relationship between time pressure and quality-threatening behaviour identified in this study include the materiality of the audit area and the auditor's assessment of the auditee. The impact of many of the variables identified in the study, such as previous experience of the auditee's staff, has not been previously examined.

Finally, the consequences of auditee influence on auditor behaviour for auditees, audit firms and society merit attention. Auditee staff maintained that auditees would not exert influence on material audit areas, although they were not explicitly aware of materiality levels. Auditees perceived that the audit firm's control system was designed to ensure that the influence of the auditee is minimised in high risk areas. Previous research on auditor quality-threatening behaviour suggests a number of potential consequences of quality-threatening behaviour but no evidence of a direct link with actual consequences has been reported. Further research is now needed to examine the perceived and actual role of the auditor in enhancing the credibility of financial reporting and to examine the consequences of auditee influence on auditor behaviour.

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Appendix 1. Details of interviewees

Company	Interviewee number	Title of interviewee	Previous experience as auditor	Number of years since worked as an auditor
Company 1 Manufacturing	1	Group financial controller	Yes, Big Four firm (not current auditors)	>10 years
	2	Divisional financial controller	Yes, Big Four firm (not current auditors)	>10 years
	3	Divisional financial accountant	No	N/A
	4	Divisional finance manager	No	N/A
Company 2 Service	5	Divisional financial accountant	No	N/A
	6	Divisional financial controller	No	N/A
	7	Group financial accountant	Yes, Big Four firm (not current auditors)	>10 years
	8	Divisional financial controller	Yes, Big Four firm (same firm as current auditors)	<5 years
Company 3 Service	9	Divisional head of finance	Yes, Big Four firm (same firm as current auditors)	>10 years
Company 4 Manufacturing	10	Group financial accountant	Yes, Big Four firm (not current auditors)	<5 years
Company 5 Manufacturing	11	Divisional financial controller	Yes, Non Big Four firm (not current auditors)	>10 years
	12	Group payroll manager	No	N/A
	13	Group accounts receivable manager	Yes, Non Big Four firm (not current auditors)	>10 years
Company 6 Manufacturing	14	Divisional financial accountant	Yes, Big Four firm (same firm as current auditors)	5–10 years
	15	Group head of financial control	Yes, non-Big Four firm (not current auditors)	5–10 years
Company 7 Service	16	Group head of internal audit	No	N/A
	17	Group head of finance	No	N/A
	18	Divisional financial accountant	No	N/A

Appendix 2. Extract from client interview schedule

1. What level of influence do you as a client have over audit team controls in general?
   Potential probes
   Have you any influence over members of the audit team selected for the audit?
   Do you give feedback to the audit management on the performance of the audit team?
   Have you any influence over the composition of audit management on the audit?
   Have members of an audit team been replaced at any time during an audit? If so, why?
   Have you any influence on the nature/extent of audit work performed?

2. To what extent do you feel that the audit team are under time pressure when performing audit work in the field?
   Potential probes
   What has contributed to your impression of the level of time pressure?
   How does time pressure manifest itself? What evidence is there of time pressure?

3. What is the cause of this time pressure?
   Potential probes
   Are clients aware of the time budget under which auditors are operating?
   What is the relationship between the audit fee and the time budget? To what extent is the relationship between the audit fee and the level of audit work discussed?
   Has the audit fee varied significantly in the last few years?
   Is there usually a time deadline for the audit fieldwork? If so, what factors influence the time deadline?

4. What influence has the client over the level of time pressure that audit teams are under?
   Potential probes
   Pressure on the audit fee?
   Pressure on the length of time auditors are in the field?
   Delivery of documentation to auditors?
   Timing of audit work?

5. To what extent are you aware of ways in which members of the audit team could take unapproved short cuts in the performance of their work?
   Potential probes
   Would these short cuts be visible to the client?
   Would auditors be more likely to take short cuts in particular areas of the audit?

6. What influence could audit clients have over the level of unapproved short cuts taken by the audit team?
   Potential probes
   Opportunities for influence?
   Client-imposed deadline?
   Difficulty in obtaining information from the client?
   Inclination to readily accept client explanations?
   What factors impact on opportunities for influence?
   Why would clients wish to influence auditor behaviour?

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Customers? The reconstruction of the 'taxpayer' in Inland Revenue discourse and practice

PENELOPE TUCK,[a*] MARGARET LAMB[b] and KEITH HOSKIN[a]

[a]*University of Warwick, Coventry CV4 7AL, UK;* [b]*University of Connecticut, Storrs, USA*

References to 'customers' have become commonplace in the policy discourses within UK government and other public sector bodies. It is a working assumption of UK public sector management that the concept of the 'customer' can be applied to any public sector service agency or department; and this paper analyses how the UK government's revenue department, formerly titled the Inland Revenue (IR), re-characterised firstly taxpayers and latterly tax claimants as 'customers', rather than 'users', of IR services. This paper identifies some problems, dilemmas and ambiguities associated with this reconceptualisation in the context of an organisation that is predominantly a regulating department. Far from being merely a reclassification of the taxpayer as customer, the emerging discourse and associated practices of the IR were in part embedded in organisational change, including the merger with HM Customs and Excise to form the present-day HMRC. Thus this case analysis illustrates the limits of consumerism as a strategic tool of a government revenue department and raises wider questions for public management.

Keywords: customer; taxation; 'accountingization'; public sector; consumer; tax administration

1. Introduction

> I am convinced that by … focusing on the customer, the departments can make a step change in performance and efficiency (Brown[1] 2004, p. 1).

Revenue departments of central government in the UK have been subject to considerable change over the last few years. For many years there were two separate departments. The Inland Revenue (IR) dealt with direct taxes while, separately, Her Majesty's Customs and Excise (HMCE) dealt with indirect taxes. In March 2004, the O'Donnell report (Cm 6163 2004) recommended the creation of a single integrated department, to be named HM

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*Corresponding author. Email: penelope.tuck@wbs.ac.uk

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Revenue and Customs (HMRC). HMRC was formed on 18 April 2005.[2] Our investigation relates to IR but our findings and conclusions have continuing relevance to HMRC.

One salient rationale for the O'Donnell recommendation was that there would be improvements in customer service (Cm 6163 2004, p. 7). In common parlance the term 'customer' refers to a person who purchases goods and services. Since the late 1980s, the term 'customer' has been applied to a number of public services (Clarke *et al.* 2007), and this includes those services concerned with taxpayers, as part of initiatives intended to improve service delivery and improve taxpayers' satisfaction with their treatment. An indication of this use of the language of marketing is seen in the reference by the O'Donnell report to the IR's 'brand' (Cm 6163 2004, p. 28). This has been replicated in other jurisdictions where the taxpayer is regarded as a client or customer (p. 40) and would seem to be part of a wider reconfiguring of the relationship between government and the citizen or subject (Clarke *et al.* 2007). The 'customer view' is regarded as best practice for tax administrations by the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD) (Cm 6163 2004, p. 72).

This paper analyses how, in UK tax administration, customer discourse became a prominent part of IR narrative, and examines why introducing the concept of the customer might have been problematic. The contribution of this paper is to illustrate how the customer discourse has become more than just a mere substitution of words and has also resulted in new practices being introduced across the range of IR services, including customer satisfaction targets and customer surveys. The contribution of the paper is also to show that this is an extension of the process of 'accountingization' (Power and Laughlin 1992) – that is, the way in which New Public Management (NPM) and New Public Financial Management (NPFM) are brought in to new ways of doing accounting (see Power and Laughlin 1992, p. 127). In this sense, 'accountingization' within the public sector has re-configured the focus of public sector activities in which accounting has colonised and 'eclipse[d] broader questions of accountability' (p. 133), so that a focus on concepts (such as the customer) that can be accounted for are a proxy for an assessment of the activities of the IR irrespective of whether the concepts are suitably defined and appropriate for the purpose. Although this paper focuses on the IR in the 1990s and 2000s prior to the merger of IR and HMCE to form HMRC, the concept of the taxpayer as a customer has continued and been further developed within the merged department (Cm 7107 2007).

We have traced the pattern of customer and marketing discourse by using official IR documents, such as annual reports, and other IR texts available in the public arena, including speeches made by senior IR officials. We have also drawn on six semi-structured interviews, each lasting one hour, jointly conducted by two of the authors in late 2001 with senior IR officials. Owing to the sensitivity of interviewing IR officials at the time, it was not possible to record the interviews. However, detailed notes were taken, which were written up directly after the interview and were checked by both interviewers. These interviews have been supplemented by interviews carried out by one of the authors with IR officials and UK company tax managers in 2002/03 (Tuck 2007) and conversations with HMRC officials in 2010. The interviews are referred to in the text by organisation, position, reference and year.

In section 2 we examine NPM, the public sector customer and the impact of NPM on the IR. Section 3 discusses the beginnings of the 'customer' concept and how this concept has been extended. Section 4 looks at the emergence of the 'customer service' concept. In section 5 we discuss the problems, ambiguity and controversy of the 'customer service' concept. Section 6 concludes by discussing the effect and consequences of the consumerism of the IR as a strategic tool of a regulating department.

2. The impact of New Public Management

2.1 *NPM and the public sector customer*

The core of NPM (Osborne and Gaebler 1992, Hood 1995) is to apply management ideas and practices which have their origins in the private sector, on the grounds that there are few differences between the private and public sectors, and to shift the emphasis from 'process accountability towards a greater element of accountability in terms of result' (Hood 1995, p. 94). Within the UK civil service, the emergence of NPM led to 'management by accounting', in that accounting became a key aspect of the organisation and was a key factor and constituent of proposed and actual changes (McSweeney 1994). Taking a more 'accounting and financial' view of public organisations was part of NPM itself. Management is carried out through performance management measures, such as Public Service Agreements (PSAs), which are predominantly financial. PSAs with measurable targets were introduced following on from the 1998 White Paper (Cm 4181 1998) and its supplement (Cm 4315 1999). The relationship with government is now as an accounting entity, i.e. 'accountingization': one in which activity is measured by accounting targets and not just how well the rules and norms of a bureaucratic entity are applied (Power and Laughlin 1992).

NPM focuses on private sector management practices (Hood 1995), including marketing and strategic practices. In the UK, NPM was used to move public sector mindsets away from the processes of the service providers themselves to a focus on the use and the users of the services provided (Le Grand 2006, Clarke *et al.* 2007). The use of the term 'customer' has been promoted by government ministers and senior managers, and has been extended to the public sector with the intention of improving service to the users of public services (Needham 2006, Clarke *et al.* 2007).

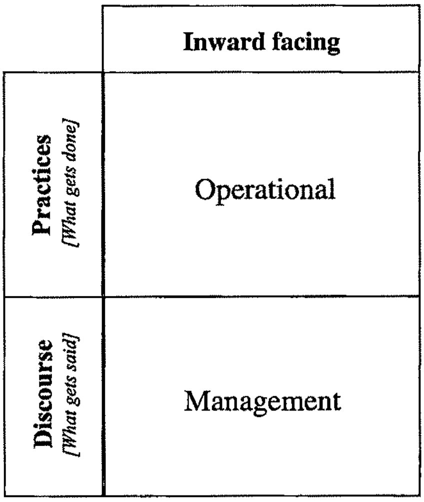
Within the private sector, the customer creates the demand for the supply and choice of goods and services. The public sector differs in that, whereas the customer consumes the services delivered by the government, the choice of what services are delivered is a matter for citizens and their elected representatives (Alford 2002). In the private sector, customers exchange their money directly for goods and services. However, in a public sector context, the exchange is more indirect in that beneficiaries mostly do not pay money to receive the service. Alford argues that, although these customers do not pay money directly, they pay for the services in ways that assist the organisation, such as 'information compliance, co-operation or productive effort' (p. 5); it is in fact a social exchange. There are concerns on the part of public administration scholars that customer-focused reform of government raises paradoxes in application, not least because the concept of 'customer' is poorly developed and that its use is likely to exacerbate political inequalities (Kettl 1994, Fountain 2001). This concern is acute in settings such as government tax and finance departments because the concept of taxpayers being regarded as customers of the tax officers who calculate their tax liability seems initially inappropriate. Taxpayers do not have a choice as to the amount of tax to pay or to whom they pay tax; neither is there an appreciation of the service supplied to a taxpayer. There has been widespread adoption of 'customer service' approaches to service delivery not only by the UK IR but also by other tax administrations (Coleman and Freeman 1994, 1997, Cm 6163 2004, p. 40). Aberbach and Christensen (2007), when examining Norway and the US, argue that there are three reasons why tax administrations have become more consumer orientated. First, they argue that tax administrations need to adapt as they do not address changing internal and external needs and demands. Second, they argue that, by focusing on taxpayers' needs, the tax administration will improve in both efficiency and quality of service. Third, they perceive that, with more information, insight and attention, taxpayers will 'comply' better in terms of both amount paid and timeliness of the payments, thereby saving resources (although one might note that this last reason does not require the concept of a customer as such, but could happen in producer-led organisations too).

From research in the area of responsive regulation theory, Ayers and Braithwaite (1992) suggest that the customer service approach is part of an increasingly popular alternative to compliance management that does not rely so much on punishment (Braithwaite and Braithwaite 2001, Murphy 2004, Braithwaite 2007) as on encouraging voluntary compliance. Consequently, different degrees of regulation should apply to different strata of the regulated population (Ayers and Braithwaite 1992). Alford and Speed (2006, p. 319) argue that a customer-focused approach, akin to a private sector focus, is appropriate for public sector bodies, provided that, in the case of regulatory entities, 'this occurs within the space defined by application of compulsion'. In a defined space regulators can treat their users as customers. However, Ezzamel (1994, p. 273) argues: 'once the market "ethos" has been set in motion within the organization, the asymmetry between external and internal customers redefines and reconstitutes organizational practices and relationships.' Thus, rebranding the citizen as a customer may alter the relationship between the state and the users of those services.

2.2 *New Public Management and the Inland Revenue*

Prior to the NPM public sector reform, the IR was an inward-focused organisation. In this stage, the IR was mainly focused on internal 'operational' activities within the organisation of planning and implementing the collection of tax from various taxpayers and paying over that tax to the government (Modell *et al.* 2007). Its internal actors had to manage these operations according to rules and norms generated from within the IR. Therefore an internal discourse predominated in managerial or civil servant language, as illustrated by Figure 1.

At the initial stage of public sector reform during the 1980s, the IR still had to carry out its operations and management according to bureaucratic rules. The IR was, and its successor HMRC remains, accountable to government ministers for its management of tax yield and of resources made available for tax administration. As Ezzamel (1994, p. 275) notes, 'the very notion of quality is curiously reduced to measures of quantity'. For example, tax collection is accounted for by type of taxpayer, e.g. large businesses, rather than the tax collected being



	Inward facing
Practices *[What gets done]*	Operational
Discourse *[What gets said]*	Management

Figure 1. IR before public sector reform.

analysed by the type of tax, such as Income Tax or Corporation Tax. Classification of tax revenues by type of taxpayers was not previously measured and consequently not previously judged.

Compared with other public services, another particular distinguishing feature of the ways in which the IR adapted NPM characteristics was the focus on the 'customer' or 'consumer' rather than 'taxpayer' or 'citizen'. A 'customer' of services supplied in a competitive environment may well have different expectations and needs from an IR 'customer' who has only one taxing organisation to deal with. Even in these circumstances of natural monopoly, operationalising the notion of the IR 'customer' may involve more than embedding levels of service discourse and measures throughout the organisation (Ogden 1997). In the next section, we look at how the customer concept was introduced into the IR.

3. Beginnings of the Inland Revenue 'customer' concept

In the late 1980s and early 1990s UK governments increasingly advocated public sector reform, which involved the creation of arms' length executive agencies allegedly with more local autonomy and accountability; adoption of 'charters' to make explicit customer service standards; and adoption of new practices to improve performance and cut costs. Ogden (1997, p. 536) notes that:

> The concept of the 'customer' was central to the rationales which informed ways of thinking about an 'enterprise culture'.... [It] has come to serve as a paradigm which has been used both to legitimate the government's preference for market-based provision of goods and services, and to question and re-evaluate the capacity of the State and more particularly public sector professionals to judge and define what people require or need in the name of their well-being.

Case studies undertaken by PricewaterhouseCoopers (PwC 2000a, 2000b), reporting on IR management, locate the first occurrences of 'customer focus' and 'customer awareness' in a 1989 initiative by the IR entitled *Quality Service through People*. The IR explained (IR 2002, Section 2.1): 'By the early 1990s we realised that... we needed to provide much better customer service – reflecting higher public and government expectations.' A major change programme for the IR was launched in 1992. It sought improvements in four areas, known as the 'Four Cs':

> *Customer service* – to gain a significant improvement in customer service by getting people's tax affairs right first time;
>
> *Compliance* – to gain a steady improvement in compliance; with the right amount of tax paid at the right time;
>
> *Cost efficiency* – to gain a significant reduction in costs and provide value for money in everything the Department does; [and]
>
> *Caring for staff* – to recognise that people are the Department's most important asset (National Audit Office 1996).

The 'excellence' literature of management models complemented the 'enterprise culture' commitment of the UK's government in the late 1980s and early 1990s (Du Gay and Salaman 1992, Ogden 1997). A management tool of the 1980s, which originated in the private sector, Total Quality Management (TQM)[3] was one of the means by which the IR sought to meet the requirements of the change programme, and this included bringing the 'customer' concept into general IR internal use. TQM claimed to adopt a holistic, process-orientated approach to management with three key principles – customer focus, continuous improvement and teamwork (Johnson

1994). These principles were implemented through a set of practices (e.g. collation of customer information and analysis of organisational processes) and supported by a variety of techniques (e.g. customer surveys and team-building exercises) (Dean and Bowen 1994, Boyne and Walker 2002). At the same time that TQM was seen as a potential complement to, or even a substitute for, financially-based management (Johnson 1992, p. 1994), there were also voices questioning whether it was really more than merely the continuation of accounting-based management by other means (e.g. Ezzamel 1994), in that it was a top-down managerial control device.

Nevertheless, in the early 1990s, TQM was one of a number of techniques that parts of the IR used to respond to the challenges posed by the change programme. Some IR executive offices were the earliest IR adopters of the quality programme. The IR Accounts Office Shipley and IR North West both adopted the European Foundation for Quality Management (EFQM) Excellence Model, one of the leading TQM models, to provide a longer-term structure for their quality-orientated change initiatives (PwC 2000a, 2000b). By the mid-1990s the Excellence Model was promoted by both the IR and the government as an effective quality framework (PwC 2000c, CMPS 2001a, 2001b). By 2001 it was used by 'all but a handful' of IR offices (Cm 5304 2001, p. 13). In a survey of UK public sector users of the Excellence Model, PwC (2000c, p. 4) found that it 'was seen as providing a common language and framework for carrying out organisational assessment and planning for improvement'. The model captures a number of concepts that continued to be used as IR strategic discourse, such as 'enabling', 'customers', 'people', 'partners' and 'society' (Lamb *et al.* 2003). Given that TQM models were primarily drawn from the private sector after they were well-established there, we have a situation in which the only appropriate benchmarks available that fit the model in its early periods of adoption also came from the private sector. Case studies of IR adoption of the Excellence Model (PwC 2000a, 2000b, 2000c) make clear that some of its processes (especially benchmarking to organisational best practice wherever located) helped to establish a cultural norm that IR civil servants would look to the private sector for information about standards and practices.

The Four Cs change programme of the IR and the EFQM both had a customer component. The 'Four Cs' refer to customer service and the EFQM model refers to customer focus. The practices contained in these programmes reinforced the idea of a 'customer'. However, the discourse of customer, especially the extension from the customer to customer service, became more prominent in later years.

At this stage, we see the two-box diagram (Figure 1) evolving such that the two boxes are joined by a new right-hand set (Figure 2), which depicts how the IR now had a set of concerns facing outwards from the organisation to other stakeholders, notably its customers, added to the earlier internal organisational focus. In addition to the operational activities of planning and implementing tax collection, the IR had to carry out strategic practices of communicating

	Inward facing	**Outward facing**
Practices *[What gets done]*	Operational	Strategic
Discourse *[What gets said]*	Management	Marketing

Figure 2. IR following public sector reform.

with customers and marketing itself to its customers. The previous set had not disappeared but the outward-facing activities had to operate in addition to and alongside the inward-facing activities. Thus inward- and outward-facing concerns were dependent on each other, since appropriate communication with customers was dependent on the planning and implementation of the tax-collection process and vice versa.

However, there were clear signs that the outward-facing activities were making a difference both to what is done and what gets said. The practices of 'top management' were now increasingly taken up with 'doing strategy' in order to engage with the 'out there'. By this, we mean that senior officials had to focus on outward-facing activities to a greater extent compared with the management of inward-facing internal operational activities. A key aspect of the strategy involved redefining the taxpayer as the customer: accordingly, a discourse of marketing began to circulate, alongside that of management (IR official J 2001).

4. Emergence of the 'customer service' concept

By the early 1990s there was awareness within the IR that both the government and the public expected a more customer-orientated service. This was conveyed at the Inter-American Center of Tax Administrations Conference by the IR, both as a commitment to customers and as a rethinking of many of the IR's fundamental organisational principles:

> For the first time we made major investment in private sector consultancy to look at our business and the way it was structured. How could we optimise delivery? How could we change our culture – perhaps better expressed as 'the way we do things round here'? (IR 2002, 2.1).

Our interviews with IR officials in 2001 suggested that they made internal associations between the transformation of the IR into a customer-driven organisation and the government's Next Steps Initiative as detailed in a House of Commons Paper (HC 494 1988). The Next Steps initiative advocated the development of executive agencies (accountable units) managed by a central unit (McSweeney 1994). Customer service was a feature of this initiative by 1992.

As a way of furthering these initiatives, a 'customer service strategy' was introduced in April 1996. It was described as: 'a means to an end and not an end itself. Ultimately Customer Service is about improving our business efficiency and better use of resources' (IR 1999, 1.1.3). This customer service strategy was designed to:

- help everyone in the Department see what their role is and what they should be aiming to achieve;
- raise the standards of customer service overall, by providing a common understanding and making customer service more business-focused;
- strengthen and emphasise the links between customer service, compliance and cost efficiency, without losing any of the job satisfaction from customer service work;
- develop its potential for producing significant increases in our operating efficiency;
- point the way to an entirely new perception of taxpayers and others as our 'partners' in the common task of ensuring that everyone pays the right amount of tax; [and] • focus the thinking of people in the Department on Customer Service' (IR 1999, 1.1.3).

The various initiatives cited made the IR much more customer-conscious, but the shifts in thinking and practices associated with the introduction of self-assessment taxation reporting in the mid-1990s were possibly more significant. 'Self-assessment did help us to mainstream customer service. … [T]he way we inter-acted with taxpayers was different afterwards' (IR 2002, 3.3). Also, there was a growing sense within the IR that 'people now also expect public services to match the quality of the private sector' (IR 2002, 4.3).

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In the early 2000s the IR began to shift from 'customer service' to 'being customer-focused'. The distinction is explained:

> Customer service was about helping people to find their way through the maze of processes which we had designed largely to suit ourselves. Customer focus is about understanding the people we deal with and re-designing processes so that they fit with the way they live their lives and run their businesses (IR 2002, 4.3).

The commitment to understanding customers involved the IR in rethinking many of its fundamental organisational principles. Part of this approach was seen in segmenting its customer population into key categories, namely, individuals, employers and companies. These categories were reflected in the IR's re-organisation of its Revenue Policy Division into sections that reflected this and which included personal tax, employer initiatives and business tax. The categorisation was also evident in the organisation of the IR web portal,[4] with prominent home page links for individuals, businesses and employers, as well as for non-residents, charities and practitioners. This reflects a worldwide trend of tax administrations to organise their operational structure in a functional customer approach rather than a tax-type organisational structure (IMF 2002, Cm 6163 2004, p. 15). These issues, and the attendant uncertainties, are discussed further below.

5. Problems, ambiguity and controversy

Taxpayers are not enthusiastic supporters of the term 'customer' and resist the term (Montagu 2002a[5]). The question arises as to whether this designation should apply to taxpayers and others who have no alternative but to deal with the IR as their collector of taxes or disburser of benefits. There has always been a mixture of adversarial and co-operative relationships between the IR and the taxpayer (Lamb 2001, Frecknall Hughes 2002, Tuck 2007). If the use of the term 'customer' is accepted by taxpayers and citizens, then one of the difficulties of using this term is the problem of defining who is and who is not a customer. It could be argued that taxpayers are not the only customers of the IR and the government is also a customer with legitimate interests in IR activities. A further problem relates to the differentiation of customers. In section 5.1 we examine the issue of reluctance emerging from our analysis of public documents from both the IR and outside the IR and the interviews that we carried out. In section 5.2 we discuss who the customers of the IR are, and in section 5.3 we further consider how different types of customer may be distinguished.

5.1 *Reluctance*

The process of embedding the concept of 'customer' inside the IR, intended to improve services, met with some internal resistance (IR 1999, 1.1.2, PwC 2000a, 2000b, IR official R 2001):

> [Customer discourse] is the same system with a new label (IR official J 2001).

> There were no customers when I was in the Revenue. There were taxpayers. I don't think the idea that we are customers sits comfortably with my idea of corporates or with inspectors (UK company tax manager C9 2003).
>
> [I]t's an odd concept [customers]! We're not, we're taxpayers (UK company tax manager C5 2003).

The internal discussion spilled over into public debate, where the IR took pains to explain its discursive choice. In 1994 the deputy chairman at the time wrote to *The Times* newspaper:

> We use the word 'customer' for two reasons. First, we hope that it conveys to taxpayers that they have all the rights to courtesy, efficiency and satisfaction that they expect in all their other business dealings. Second, it reminds all of us in the Revenue that, although we may be a monopoly, we have a clear obligation to provide the best possible service to the public (Clive Corlett 11 January 1994, quoted in IR 1999, 1.1.2).

The internal *Customer Service Manual*[6] (IR 1999) explains why some people objected to the term 'customer':

> 'The Revenue doesn't have customers,' [some objectors] said, 'it has taxpayers.' They usually gave two reasons for this:
>
> - Customers buy goods and services because they want them. People deal with the Inland Revenue because they are forced to pay taxes. No one comes to us because they want to.
> - Customers have a choice about where to go. If they think that a particular supermarket is too dear they can go to a cheaper one. If the service in a restaurant is too slow they can go to another one. No one has any choice with us. If you want your Income Tax dealt with you have to do business with the Inland Revenue (IR 1999, 1.1.2).

The manual goes on to accept that there is 'some truth' in these criticisms, but asserts 'for the very reason that customers have no other choice, it is up to us to provide the best service consistent with available resources and Departmental priorities' (IR 1999, 1.1.2). Thus taxpayers do not have the choice available to private sector customers but the IR will call them 'customers' to remind themselves to treat them as if the taxpayers have a choice.

A further justification for using the term 'customers' also involves a form of logical reversal:

> Another reason we use the phrase is that not all our customers are taxpayers. A lot of people are our customers precisely because they are NOT taxpayers – we make repayments to about 2 million people a year (IR 1999, 1.1.2).

The quotations indicate that people to whom the IR makes repayments are not 'taxpayers' in an immediate sense, so the IR calls them something else instead. Comments made in interviews by IR officials in 2001 suggested that the expansion of IR responsibilities after 1997 made the term 'customer' more widely accepted within the IR. Continuing ambiguity outside the IR is evident in the response to public criticism given by Montagu (as chairman of the IR):

> I have been criticised in our national press for referring to the people whom the Inland Revenue serves – taxpayers and, as I shall explain in a moment, people claiming tax credits – as 'customers'. The critics maintain that it is unrealistic to describe them in this way because they have no choice whether or not to avail themselves of our services. They cannot seek alternative providers. My reply is ... that what matters is not whether the public actually have a choice but that we should always behave as if they did. Only in that way will we succeed in instilling in all our own people a search for constant improvement and an unrelenting emphasis on the needs of the communities that we serve. Increasingly, ... people may have a choice whether or not they do business directly with us or use an intermediary (Montagu 2002b).

The logical reversal functions largely as a means of maintaining the initial argument; namely, that the IR needs to deal with people as if they are customers. However, it also adds an extension that, as people may have a choice in whether to deal with the IR directly or not, they will themselves take on more of a customer role or persona. Both external circumstances and IR actions make the 'people' who deal with the IR more 'customer'-like. Certainly, the argument about choice is one that has been developed by the IR's marketing division (interviews with IR officials 2001) and underpins strategies for re-engineering services to customers.

The lingering need for IR senior managers to argue the appropriateness of the term 'customer' emphasised its conceptual difficulty. As Fountain (2001) argues, public servants find the metaphor of customer service valuable even though they lack a detailed understanding of its meaning and implications. However, Fountain identifies many paradoxes in the concept applied in the public sector. One of her concerns is that the logic of the embedded concept could lead to the most vocal customers being served the most urgently. Such a result would propagate inequalities in a public service that was initially designed to treat citizens fairly in substance and by reference to their circumstances. Clarke *et al.* (2007) argue that, although citizens understand the customer discourse and how they fit within it, they 'distance themselves from [the discourse], from the identifications that it offers them and from the model of the future that it offers' (2007, p. 154) as they are sceptical about the success of the government's planned policy objectives. In addition to such concerns, there can be other unintended consequences of the use of the customer term. Once customers were treated as customers, the IR felt compelled to reduce the level of dissatisfaction rather than accept or ignore it. Customer discourse can change expectations about the way in which customers are treated. In addition, where taxpayers do not believe that they are customers they may not believe that there really has been a change in approach, and there is a danger that they regard the new approach merely as 'spin'.

Fountain (2001) also contends that extending the notion 'to regulatory and enforcement settings strains the concept, often beyond reasonable use' (p. 62). This is echoed by Alford and Speed (2006). The idea that 'customer focus' is more difficult to implement in a revenue department than a service department is acknowledged in a report prepared for the UK Treasury.

> The implementation of customer-focused government would work in any department, with the focus of implementation differing to meet specific needs. Front line services (such as health, education, social services) and internal service functions (supply of materials, human resources, legal services) would probably focus around developing components 2 [Build operations around the customer] and 4 [Use customer understanding to deliver target outcomes]. Public services more distinct from the public, such as foreign affairs and public finance, where the definition of the customer is more challenging, might focus on components 1 [Understanding the customer], 2 and 3 [Manage customer relationships] (Barker 2001, p. 11).

A further difficulty in using customer discourse is that those within the IR who did not speak the correct 'customer language' may have been excluded because they were not conforming to the management discourse and were treated as outsiders (IR official J 2001).

Lamb *et al.* (2003) argue that the difficulty of implementing customer focus in the IR was revealed by the considerable effort involved on the part of the IR in developing 'enabling services'. Like tax departments in general, the IR's performance, particularly the amount of tax revenues collected and the timelines of those collections, depended on how effectively it influenced or forced taxpayers to comply with their taxpaying obligations. The perennial difficulty is how to enhance voluntary compliance. This reflects tax authorities' use of pyramidal models of regulatory conflict management (Braithwaite and Braithwaite 2001). These models are intended to reinforce holistic understanding by managers and staff of taxpaying behaviour, and they favour tax authority strategies of trust and reward for the majority of taxpayers (depicted as the large base of the pyramid) and tough enforcement for the minority (depicted as the top of the pyramid) (p. 224). The IR's application of the model is built on a base of secure customer relationship, with customer behaviour and the IR response as faces of the pyramid (Cm 5428 2002). Actions of customers and actions of the IR point downwards from non-participation and tough enforcement to the desired outcome of willing and informed customers served by an educating and encouraging IR. The models also are intended to structure managers' ways of thinking about and responding to taxpayers to enhance voluntary compliance. Effectively, we argue on the basis of prior literature and our interviews that the IR intended to make taxpayers and others actively desire to come to the IR and to believe that they had choices in how they dealt with the public finance matters over which the IR had responsibility. We argue that the IR was set on reconstructing taxpayers and others into customers in a fuller sense, thereby making it 'easier' to develop and implement customer-focused government in the IR and to enforce compliance with taxpaying behaviours.

5.2 *Recognition of the customers*

The problem of customer recognition encompasses a number of areas: the definition of customer by the IR; recognition of the customer by the IR; and recognition of the customer concept by the 'customers' themselves.

5.2.1 *Definition of the customer by the Inland Revenue*

IR discourse asserts repeatedly that its customers are the taxpayers, entitlement claimants and the other people with whom it deals. A study prepared for HM Treasury indicates the use of the word 'customer' is the result of a deliberate choice in preference to words like 'citizen' or 'stakeholder'. Identification of customers is 'tricky', the report acknowledges, and ambiguity over who is, and who is not, a customer is common throughout the UK public sector:

> We found considerable ambiguity in parts of all the consulted departments around who the main customers/clients/stakeholders are (regardless of terminology) and what government is trying to do for, or with, them. Some policy makers cite government ministers; others cite pressure groups, 'the public' or service users. There is no simple answer, but that does not preclude the need to be able to answer the question. We suggest that without knowing that, priorities shift to short term tasks and consistent achievement of target outcomes is very unlikely (Barker 2001, p. 5).

Barker also suggests that it is a matter of opinion as to who is clearly seen as the customer (p. 9). The report suggests a framework to distinguish between numerous categories of 'stakeholder', this being 'the widest term to cover all bodies or groups with any interest in the work of the organisation' (p. 14). Other stakeholders 'who could not be considered customers, but who have some stake in the process of providing the customer service' (p. 15) are identified as well. 'Partners and advisers' are 'those groups which have a stake in the process of achieving that outcome (e.g. partners, intermediaries, interest groups, independent experts)' (p. 14). These can analytically be subdivided into: customer representatives; intermediaries and partners in the provision of government services; and independent experts (p. 15). 'Customers' are 'those groups which have some stake in the ultimate outcome of the organisation's work (generally the public)' (p. 14). The report distinguishes between 'target customers' and 'indirect customers':

> **Target customers** [are] the intended ultimate beneficiaries, consumers or users of the service/s provided, e.g. patients of healthcare services, recipients of benefits. The objective of the public service will be to provide something of use to target customer segments or intended to have an impact on them. This could include reluctant customers (such as prisoners as recipients of rehabilitative services), unaware customers (such as children as future generators of income) and unformed customer groups (such as the public as protectors of human rights) (p. 14).
>
> **Indirect customers (not targeted but affected)** [are] impacted, or potentially impacted, by the services to target customers, intentionally or unintentionally. The organisation's objectives will not specifically include services to these groups, but the organisation will have working objectives that ensure their interests are considered, e.g. that the approach is 'inclusive', considers the impact on

> partners in service delivery, the environment etc. This category will include a long and changing list of segments, probably always including the public as taxpayers, internal staff, other government departments, agencies, local authorities and other organisations in the delivery 'chain', under-represented socio-economic groups, the public of other countries. This list could be long – it should be prioritised and tailored for each service function (p. 14).

In the IR case, the Public Services Productivity Panel (PSPP)[7] framework about public services in general helped clarify who were *not* target customers: the public and internal staff were indirect customers. Taxpayers' agents, intermediaries and interest groups were partners. The distinction does not yield immediate clarity of who IR's 'target customers' were. The 'intended ultimate beneficiaries, consumers or users of the services/provided' would seem to be the UK as a whole as the target customer for the provision of tax revenues; government ministers for the provision of tax administration; and taxpayers and claimants for IR services as calculator and conduit of tax payments and entitlements. Recognition of target customer identity depends on how one defines the service/s provided. It seems, therefore, that the PSPP framework confirmed that the IR had to (re)define its services to achieve greater clarity over identification of its target customers.

5.2.2 *Recognition of the customer by the Inland Revenue*

'Customer' would seem to be an inappropriate term for the Exchequer and government ministers (and more generally the executive arm of government) as they have a principal–agent relationship with the IR. However, the idea that ministers are IR customers is evident in a number of documents by or about the IR. For example, the PwC (2000a) case study reports that the IR Accounts Office Cumbernauld included Treasury ministers among its list of customers.

The ambiguity arises if one looks at the IR's high-level performance management texts. Consider, for example, the first two objectives of the 1998 IR Public Sector Agreements (PSA) compared with the 2003 Objective and Targets (see table below). The Exchequer and ministers are examples of such ambiguity. Their proximity to the expression of the IR's fundamental purpose might suggest that they were the customers of the IR. The view of the IR was the contrary, as indicated by the disappearance of the Exchequer and ministers from the wording of the 2003 IR PSA. It is interesting to note that the high-level objective 2 of the 1998 PSA ('Providing ministers with high quality analysis and advice...') is omitted from the 2002/3 PSA, Service Delivery Agreement (SDA) and Technical Notes as an explicit objective (IR 2003a, 2003b, 2003c). However, the 2002 IR annual report (Cm 5706 2002, p. 32) reports: '[Revenue Policy Division's] work underpins our high level objective to provide Ministers with quality analysis and advice on direct tax, tax credits and National Insurance Contributions policy that helps the government meet its wider objectives.'

1998 IR Public Sector Agreements (Cm 4181 1998)	**2003 Objective and Targets 1 and 3** (IR 2003a)
'1 Bringing into the Exchequer the taxes, national insurance contributions and other receipts, and disbursing tax reliefs and credits, for which the Revenue are responsible.	'**Objective 1:** collect the right revenue, and give the right entitlements, at the right time.
2 Providing Ministers with high-quality analysis and advice on direct tax and national insurance contribution policy reflecting the government's tax objectives.'	Target 1. Deliver improvements in the number of individuals and businesses who comply with their obligations and receive their entitlements.
	Target 3. Ensure by 2005 that 100% of services are offered electronically, wherever possible through a common government portal, and promote take-up for key services.'

It is unclear whether the term 'high level objective' is universal text carried forward from earlier reports or a significant inconsistency in language. Provision of analysis and advice to government ministers is listed as an IR 'responsibility' in its Trust Accounts, presented in the annual report (Cm 5706 2002, p. 90). There is ambiguity as to whether the IR should report its 'performance' in terms of how well it meets its PSA 'objectives' and targets, or in terms of how well it meets its 'responsibilities', or in both terms. Additionally, it is unclear whether 'objectives' or 'responsibilities' or a combination of both serve to identify customers. Although the Revenue Policy Division's report did not discursively construct government ministers as formal 'customers' for policy advice, we were told that there was a 'customer' perception of the relationship with such ministers. In autumn 2001 an IR official in the Revenue Policy Division told us: 'Ministers are the prime customers of Revenue Policy. ... Ministers tell you when they don't like what you are doing' (IR Official R 2001).

5.2.3 *Recognition of the customer concept by the customers themselves*

If customers do not recognise that they are customers, they will not accept being called customers, particularly if they believe that the real customer is someone else. This is confusing: taxpayers, tax claimants and the Treasury each had different relationships and interactions with the IR. Likewise the IR had different expectations and demands of each of the groups. The complexity of the concept was suggested by the 2002 annual report reference to 'internal and external customers' for service delivery (Cm 5706 2002, p. 26). It is uncertain who decided who the *intended* ultimate beneficiaries of IR services were. We suggest that, in the IR's case, it was the government that had decided that IR 'target customers' for discursive purposes could not be government ministers, the UK as a whole or the general public. This means that the IR had to redefine its services, and change what it does, in order to define who its customers were. It is simply not tenable for government itself to be the dominant or preferred customer of its own departments and agencies. The process of redefining services so as to remove government ministers from the equation is evident in the (re)formulation of core purpose, aims and objectives between 1998 and 2003, as discussed above. However, we argue that the organisation of IR operations (e.g. separate service delivery and revenue policy divisions) to fulfil IR functions meant that there was another discourse of 'objectives' that operated alongside those sanctioned for the government's performance management purposes.

5.3 *Segmented target customers*

> [O]ur customer base is far bigger than that of any other organisation, public or private, in the UK (IR 2002, 4.2).

The sheer scale of IR operations meant that it had to focus on different groups of taxpayers, claimants and benefit recipients in order to define services and make decisions about how to deliver those services and persuade people to co-produce for the IR (for instance, with regard to compliance with information and co-operation). It claims '9 major customer groups ... reflecting around 38–40 million customers' (IR 2003c, p. 6). The 2002/03 Service Delivery Agreement (IR 2003b) and PSA Technical Notes (IR 2003c) mention eight customer groups by our count: individuals subject to income tax self-assessment; employers subject to Pay As You Earn obligations; companies subject to corporation tax self-assessment (further divided into large, medium-sized and smaller companies); claimants of income tax repayments; those entitled to child tax credit, working tax credit and child benefit; claimants of National Insurance entitlements; small businesses; and other departments and agencies that obtain valuation services from the IR. The 2002 annual report suggests another: 'non-resident customers' (Cm 5706 2002, e.g. 123).

Montagu (2002a) highlights how the IR's customer base had become bigger and more diverse since 1997:

> Our move into areas of social policy as the Department responsible for tax credits (and, from next year, child benefit) has led to a significant change in our customer base. Our customers now range from large multinational corporations, through employees and employers to small businesses and on to tax credit recipients, taxpaying pensioners, student loan recipients as well as other government Departments. This means that it is more than ever essential to identify our customers by groups with distinct needs and wants, and see how best to meet them. We have undertaken analysis and research, so that we can understand those needs. And this substantial programme of research is continuing, but we have already concluded that we must indeed pursue a customer segmentation strategy; only by doing this can we hope to tailor our services to the needs of the individual customer).

The IR's customer relationship management (CRM) approach involved customer segmentation:

> We are initiating [CRM] which will include defining our main customer segments, identifying the main outcomes we wish to achieve with them, and then putting in place strategies and action plans based on customer responsibilities, needs and behaviour, to improve delivery to them, and their delivery to us (Cm 5706 2002, p. 17).

As with any segmentation of customers, there will be customers who do not typically fall within the classifications or who are at the boundaries of the categories (Dibb and Wensley 2002). The category into which they fall may be open to choice, reflecting the fuzziness of the boundaries.

A director of marketing and communications was appointed in November 2000 to carry CRM forward. This appointment signalled the IR's intention to use 'marketing [as] a significant weapon in [its] armoury' (Farron *et al.* 1999, p. 297). Interviews with IR officials in autumn 2001 confirmed that marketing was changing the way that the organisation operated, especially how it modulated messages to taxpayers and the general public. A viewpoint of a senior IR official was that using marketing 'speak' helps the IR to act differently towards taxpayers (IR Official C 2001).

6. Discussion and conclusion

We undertook this research in the early years of the customer concept and its evolution under the IR. The most interesting conclusion is the ambiguity over who the 'customers' were. The IR needed to detail explicitly who its customers and target customer groups were and it needed these definitions to be accepted by the target groups. Further, the link to defined services should have been made more explicit so as to make the use of the customer concept understood as appropriate in particular contexts both internally and externally, especially in its strategic documents and communications. The language of marketing, including the use of the customer construct, enabled taxpayers to be enrolled as customers. While this has some advantages for tax administration, such as increasing the sense of co-production in services (Alford 2002), there were also problematic consequences of this enrolment, both within the IR for customer service and outside the IR for the range of stakeholders who were deemed to be customers. This manifested itself first as aspects of resistance to the discourse and reluctance to accept it, and then later as acceptance of the inevitability of the use of the term. However, taxpayers were reluctant to be treated as the real customers of the IR. Perhaps the key reason for this is that the IR was not only responsible for delivering a public service, but was also responsible for the management of the tax yield on behalf of government ministers and the Exchequer. In addition, taxpayers needed to perceive that they were being treated as customers, rather than merely being told that they were customers. This reclassification of taxpayers as customers did not occur in isolation. New practices were introduced, such as customer segmentation strategy, the introduction of CRM approaches, customer satisfaction targets and customer surveys, which enabled management to reinforce the customer concept and legitimise its usage through the use of performance measures.

This paper has examined the customer concept within the IR. Interviews were carried out with senior IR officials in 2001; a time when research interviews within the IR were very rare. They were supplemented by further interviews in 2003 and 2010. Whilst some time has elapsed since most of these interviews were carried out, the use of the customer service concept remains significant for HMRC in the period of financial restraint that has characterised more recent years. A senior HMRC official explained in July 2010 that the HMRC was questioning whom it could afford to treat as customers, stating: 'people who are evaders are not customers' (HMRC Official S 2010). In addition, the official commented that HMRC was debating what type of service could be provided to those customers who evade paying taxes. Cost considerations need to be taken into account in providing a service and this may impact on customer satisfaction ratings.

NPM practices were first concentrated on financial measures assisted by organisational restructures such as Next Steps (HC 494) and the introduction of measurable performance targets. Thus, the initial stage of accountingization introduced new applications of accounting into management within the public sector (McSweeney 1994). NPM, arguably, has now evolved such that the focus is on citizens and consumers (Le Grand 2006). Within HMRC, one sign of this shift was represented by the customer concept. This extension of accountingization focuses on customer measures. However, the use of the customer concept is problematic.

This problematic concept is reflected following the merger between IR and HMCE, which resulted in significant organisational change for HMRC (Cm 6163 2004). One of the key arguments made to support this merger was the benefits it would bring to the customers of the combined department and to customer service. The 2005–06 annual report put customer-focused processes and 'working alongside our customers' as key elements of HMRC's strategy (Cm 6983 2006, p. 13). Indeed, the 2007 departmental report states that HMRC's 'aim is to put our customers at the heart of everything we do' (Cm 7107 2007, p. 26).

However, this focus on the customer for a regulatory authority may be of concern. As Ezzamel (1994, p. 273) comments, 'organizational processes are not only evaluated by reference to the market ethos, but they are also reconstructed in compliance with what the market deems optimal'. HMRC has a duty to regulate taxpayers/customers in accordance with the law; taxpayers are not merely customers of HMRC. Taxpayers cannot choose the way they are regulated or choose which rules and legislation apply to them.

These perceptions create a demanding communication challenge for HMRC in relation to encouraging its 'customers' to accept the suitability of the label as well as the regulatory relationship between HMRC and taxpayers. Thus, rebranding the citizen as a customer alters the relationship between the State and the users of those services. This empirical illustration and analysis from the area of tax administration has wider implications for conceptualising the customer in other public services. The themes and tensions remain relevant as public services in western countries enter an age of austerity.

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Notes

1. At that time, Gordon Brown was the Chancellor of the Exchequer.
2. http://www.hmrc.gov.uk/menus/aboutmenu.htm.
3. Total Quality Management (TQM) 'is a set of processes that aim to achieve higher performance', and is distinct from 'quality, which is an organisational output that can be measured'. TQM was built on early twentieth-century ideas of quality associated with statistical control. The so-called '"quality movement" has spread from its manufacturing origins into the service sector and onwards into public organizations' (Boyne and Walker 2002, p. 112).
4. Previously http://www.ir.gov.uk, now http://www.hmrc.gov.uk
5. At that time, Montagu was chairman of the IR.
6. The manuals of HMRC (and previously IR) are prepared for HMRC's staff to provide guidance to assist them in applying the law. The manuals are published on the HMRC's website, for information purposes, in accordance with the Code of Practice on Access to Government Information http://www.hmrc.gov.uk/manuals/advisory.html.
7. 'The PSPP is a small group of senior business people and public sector managers that has been established to identify ways to help improve the productivity of the public sector' http://archive.treasury.gov.uk/pspp/index.html.

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The influence of strategy map communications and individual differences on multidimensional performance evaluations

D. JORDAN LOWE[a]*, SALVADOR CARMONA-MORENO[b] and
PHILIP M.J. RECKERS[a]

[a]*W.P. Carey School of Business, Arizona State University, Tempe, AZ 85287-3606, USA;* [b]*Instituto de Empresa, Calle Pinar 15-1B, 28006 Madrid, Spain*

Multidimensional performance evaluation systems such as the Balanced Scorecard (BSC) were developed to overcome the documented tendency of managers to focus almost exclusively on short-term financial performance measures while disregarding or de-emphasising other short-term and/or long-term non-financial performance measures. Evidence suggests, however, that implementation of many of these systems has not achieved desired outcomes. Cogent communication of a corporation's goals and management's strategy to achieve those goals can be expected to influence employee 'buy-in' and the subsequent use or resistance to multidimensional performance measures. In this study we examine the role of strategy maps in communicating goals and strategy. We also examine individual differences (tolerance of ambiguity and functional background) that we believe also influence individuals to be more (or less) receptive to the guidance of strategy maps. An experiment was conducted with 165 experienced professionals enrolled in MBA programmes in Spain and the US. Our experimental results indicate that a strategy map reflecting integrated dependencies can de-bias evaluations of certain groups of individuals, who have high tolerance for ambiguity and have a financial work background. Implications and suggestions for future research are also provided.

Keywords: balanced scorecard; strategy maps; performance evaluations; de-biasing

1. Introduction

Multidimensional performance evaluation systems such as the Balanced Scorecard (BSC) were developed to overcome the tendency of organisational managers to focus predominantly on short-term financial performance, while disregarding non-financial variables that lead to long-term

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*Corresponding author. Email: jordan.lowe@asu.edu

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success. Kaplan and Norton (1992, 1996) modelled the BSC as a decision support tool that explicitly includes non-financial forward-looking information to thwart dysfunctional managerial behaviour caused by a fixation on short-term financial outcomes. Over time, the BSC has evolved into an organising framework for strategic planning and control as well (Kaplan and Norton 1996, Banker *et al.* 2004). As such, the BSC links lag and lead measures of financial and non-financial measures to strategic objectives. Causal models identify cause and effect relationships among the different functional activities that sequentially and synergistically advance organisational goals and ultimately shareholder value (Malina and Selto 2001, Wong-On-Wing *et al.* 2006). To effectively communicate these strategic relationships, organisations have developed 'strategy maps' that provide graphical representations of cause and effect linkages. Strategy maps provide a critically important visual framework for the four (or more) BSC functional perspectives and their interrelationship (Vera-Munoz *et al.* 2007). Kaplan and Norton (2000) note that strategy maps can be effective in illustrating how different items are linked together in a cause and effect relationship.

The use of multidimensional performance evaluation systems by industry is internationally widespread (see Rigby 2009, Haywood and Stuart 2010, Taylor 2010). Approximately 50 per cent of Fortune 1000 companies in North America and about 40 per cent in Europe use a version of the BSC (Gumbus and Lyons 2002, Scholey 2005). The use of the tableau de bord is widespread in France (Bourguignon *et al.* 2004). In addition, research regarding the BSC has been extensive. Initial research focused on implementation issues and the potential for positive returns to the organisation (Frigo and Krumwiede 2000, Kaplan and Norton 2001). A number of studies report success stories (e.g. Davis and Albright 2004, Sundin *et al.* 2010). Nonetheless, there is evidence that implementations of the BSC have frequently not fully achieved their desired outcomes (Liedtka *et al.* 2008). Ittner *et al.* (2003b) report that managers in their study still placed most of their decision weight on financial measures rather than other non-financial performance measures. That is, while the purpose of multidimensional performance evaluation systems is to advance a 'balanced' perspective, research has found that short-term financial measures continued to dominate performance evaluations in many instances (Malina and Selto 2001, Dilla and Steinbart 2005a, Kraus and Lind 2010). Also, implementation of the BSC has not always lead to enhanced financial outcomes and Nørreklit (2000, 2003) documents that advanced or assumed cause and effect relationships/dependencies cannot always be validated.

Among other reasons for the mixed results obtained from implementing the BSC may be its complex nature. The BSC was intentionally designed to provide a more complex process of evaluating performance, which may at times hinder its intended use. Individuals who experience difficulty utilising the BSC may apply simplifying decision strategies (Lipe and Salterio 2000, Sawers 2005), revert to biases (Kaplan *et al.* 2007) or make decisions driven by affective reactions (Carmona *et al.* 2010) or individual differences. Lipe and Salterio (2000) identified a common measures bias whereby individuals tend to employ simplifying strategies in their BSC evaluations. Several studies have sought to reduce this bias through various means, including having individuals held accountable for their decisions (Libby *et al.* 2004, Johnson *et al.* 2010), providing evaluators with supplemental training (Dilla and Steinbart 2005b), disaggregating the BSC evaluations scores (Roberts *et al.* 2004), investigating the role of individuals' problem-solving ability (Hibbets *et al.* 2006) and altering the original experimental design (Denison *et al.* 2008). While this recent research has provided some insights regarding the parameters of the common measures bias it has, with few exceptions (e.g. Kaplan *et al.* 2007), ignored the possibilities of other factors and biases that may impact the BSC performance evaluation process.

The objectives of this study are two-fold. First, we propose that the type of strategy map communication can influence the interpretation of corporate intent in intended or potentially unintended ways, and in turn drive systematically different performance judgements. Second, we expect that individual differences may influence not only judgements, but also the receptiveness of individuals to communications embedded in alternate but not always equivalent strategy maps. We conducted an experiment with 165 experienced professionals enrolled in Masters of Business Administration (MBA) programmes in Spain and the US. Our experimental results indicate that a strategy map reflecting an integrated dependency relationship can moderate the often-present financial fixation/bias among corporate employees, but only among those individuals who are receptive to the message embedded in that strategy map. More specifically, we found that a more balanced performance criteria perspective manifests among managers who have a high tolerance for ambiguity and/or have a financial/accounting background.

Our study makes three primary contributions to extant literature. First, we identify two factors that may explain in part the mixed findings of prior research. Second, our findings challenge certain common assumptions that fixation on short-term financial outcomes is primarily only a problem in North America. Third, and most importantly, we demonstrate that strategy maps communicate messages that may advance or thwart the successful implementation of corporate strategy. That is, we identify conditions under which an appropriate strategy map can effectively influence the judgements of receptive individuals. An important implication is that ignoring strategy map communications (which are fundamental to employee buy-in) in research design as well as in corporate implementations is problematic.

The remainder of the paper is organised as follows. The next section presents the literature review and proposes testable hypotheses. The third section details the methodology and overall experimental design. The results are presented in the fourth section. Finally, the implications of our results are discussed and suggestions for future research are offered.

2. Literature review and development of hypotheses

The BSC was developed by Kaplan and Norton (1992, 1996) as a performance management tool that translates an organisation's strategic goals into measurable actions using financial and non-financial measures. As such, it is arguably representative of a larger set of multidimensional performance evaluation systems found in industry. These systems all supplement traditional financial measures with performance measures of relative success in other domains. Initially, Kaplan and Norton identified four goals: advancement of customer-focused marketing, internal business processes, learning and growth, and financial goals. More recent conceptions incorporate additional perspectives such as environment (Kaplan and Norton 1996, 2001, Speckbacher *et al.* 2003). A recent study (Bedford *et al.* 2008) reports the inclusion of perspectives other than the traditional four to be quite high: environment (50% frequency), community (53%), supplier (47%) and government (49%). The non-financial categories of performance objectives serve to broaden managers' perspectives by emphasising a balance between lead and lag measures and financial and non-financial measures (Ittner *et al.* 2003a, Taylor 2010). These more diverse measures are designed to include the drivers of performance in all areas important to the firm (Lipe and Salterio 2000) and to capture and propel the firm's desired business strategy balance (Kaplan and Norton 1993, 1996). Thus, 'the first key way the BSC enables balancing is the systematic and overt recognition of the multiple objectives, and the strategies to delivery them in the design of the BSC' (Sundin *et al.* 2010, p. 210).

The BSC also serves a critical enabling role in helping people better understand how their own work relates to the organisational value chain. However, the organisation value chain should not necessarily be equated with cause and effect functional chains. Extant research is inadequate to allow with any confidence conclusions regarding the frequency with which the cause and effect functional relationships embedded in corporate BSCs can be statistically validated.[1] Statistical validation is indeed difficult because of the lead–lag nature of most BSC causal relationships and the dynamic nature of the business environment. However, Sundin *et al.* (2010, p. 213) observe that 'the benefits of the BSC do not necessarily flow just from statistically validated causal relations between the BSC dimensions and respective measures.' Thus, the BSC can be effective, even in the absence of validated causal relationships if 'its communicated relations among measures create a complementary (a) credible story of success, (b) reinforcement of the company's pay-for-performance culture, and (c) result control that is legitimate and fair' (Malina *et al.* 2007, p. 936).

Moulding perceptions can be a tricky matter because the BSC is often instituted in settings in which the information is noisy, ambiguous, inconsistent and complex (Taylor 2010). To compound this situation, operational implementation of the scorecard itself is fraught with potential difficulties and complexities. The BSC has four (or more) distinct perspectives, each with a potentially varying number of measures, some internally generated, some external. With a multitude of measures to compare and weigh, the BSC performance evaluation task can be a difficult process. In ambiguous situations in which one set of data does not dominate the other set of data, the BSC performance evaluation process can be challenging.

2.1. *Strategy maps*

To overcome or deal with these inherent difficulties related to the BSC, individuals may develop certain coping strategies (Lazarus 1991). These strategies include but are not limited to: (1) avoiding decisions (Luce 1998, Kida *et al.* 2001), (2) delaying decisions (Sawers 2005) and/ or (3) relying on decision aids to assist with the process (Dilla and Steinbart 2005a, Sawers 2005). Of these coping strategies, we focus on decision aids in this study. A decision aid that is frequently used in conjunction with the BSC is a strategy map.

Strategy maps serve the purpose of illustrating the linkage of performance measures with firms' strategic objectives. Kaplan and Norton (1996, p. 55) observe that, 'by articulating the outcomes the organisation desires as well as the drivers of those outcomes, senior executives can channel the energies, the abilities, and the specific knowledge held by people throughout the organisation toward achieving the business's long-term goals.' These maps are important because they provide a visual framework that shows the cause and effect links by which specific actions within the four BSC perspectives lead to short- and long-term performance (Vera-Munoz *et al.* 2007). Cognitive research suggests that graphical representations (such as strategy maps) make it easier for individuals to understand the linkages among the data (Glenberg and Langston 1992). Strategy maps are able to improve individuals' ability to understand and manage the relations embedded in the scorecard. That is, providing managers with strategy maps should reduce the cognitive complexity of evaluation tasks in which multiple performance measures are available (Malina and Selto 2001, Krishnan *et al.* 2005). Further, strategy maps can lessen the ambiguity in the data as well as focus managers on activities that are the most critical to the organisation's success (Taylor 2010).

Strategy maps differ across organisations depending on the organisation's objectives (Kaplan and Norton 2004a, 2004b, Platts and Tan 2004). Strategy maps serve to reinforce intended communications. The message intended to be communicated, however, may be interpreted inconsistent with intentions. Individuals bring with them varying predispositions that may be congruent or incongruent with the BSC corporate philosophy and inadequately designed maps may fall prey to non-faithful (distorted) interpretation. In this study we examine two different strategy maps. The first depicts the four BSC perspectives as primarily independent, parallel silos (or columns) contributing to one corporate goal (enhanced shareholder value) at the top. No objective leads into any other objective, save the universal objective. This map allows for a compensatory interpretation such that strengths in one area can compensate for weaknesses in another area (see Figure 1).

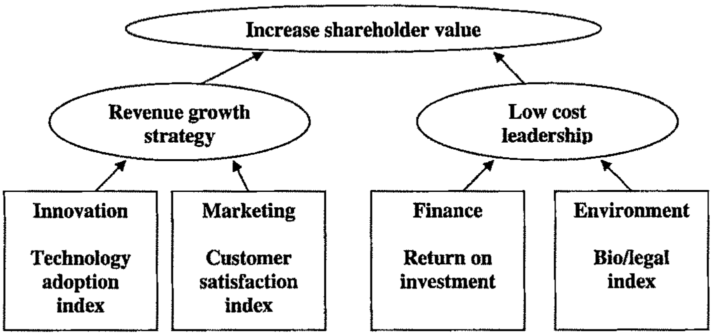

Figure 1. Compensatory strategy map.

The second is an integrated strategy map that is built from the bottom up. That is, this map starts with the foundation and then charts the dependent route that will lead to the ultimate goal of financial success (see Figure 2).

While the objectives and metrics in both strategy maps are the same, the messages being communicated may be interpreted differently depending on one's emphasis on short-term financial outcomes versus a long-term balanced perspective. For instance, even though the compensatory strategy map communicates the importance of all four perspectives to the firm's overall well-being, the financial perspective may still appear to dominate and be divisible from other activities; i.e. individuals so biased by experience or background may rationalise given this map that strength in one area (especially in the financial area) could potentially compensate for weakness in others (that is, the whole is not limited by its weakest link). Thus, individuals with a tendency to

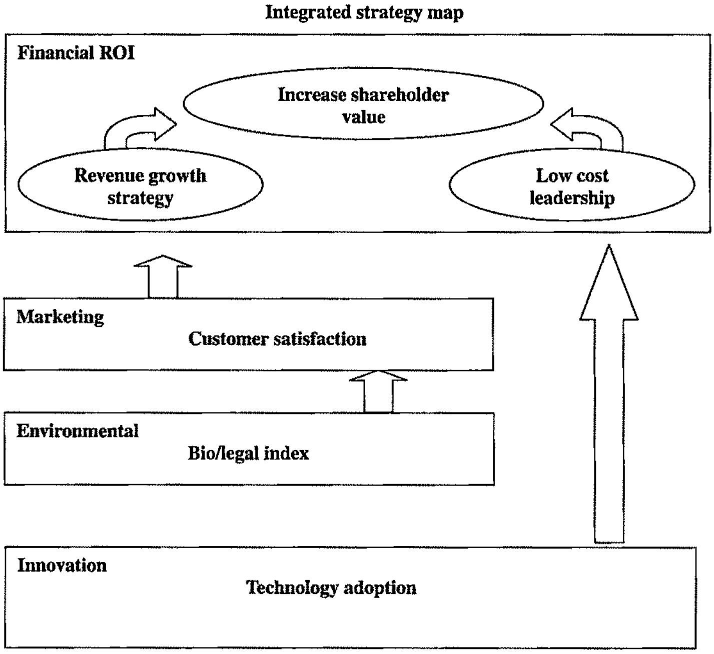

Figure 2. Integrated strategy map.

emphasise short-run financial outcomes may interpret the compensatory map as supportive of a predominately financial perspective. In relation to this point, Ittner *et al.* (2003b) found that, given a flexible environment, individuals using the BSC were still more apt to emphasise financial measures.

Conversely, the integrated strategy map communicates the integral co-dependent nature of the four perspectives. The emphasis on the linkage of these perspectives tends to elevate the importance of each link in the chain to achieving the desired outcome of increased shareholder value. This strategy conveys the idea that, 'we are all in one boat; we sink or float together.' That is, the financial perspective is highly dependent on the customer and environmental perspectives, and investments and successes must be achieved in each. This rather obtrusive perspective should have the effect of providing a more balanced view for those individuals' receptive to this strategy map.

2.2. *Individual differences*

Individuals have been found to experience difficulties utilising the BSC and have at times resorted to relying on their own biases or individual differences. In this study we examine certain factors that we believe influence individuals to be more apt to apply (or resist) new performance metrics related to a new multidimensional corporate strategy, and/or be more (or less) receptive to the guidance of strategy maps. We investigate two participant characteristics (tolerance for ambiguity and functional background) that suggest more complex dynamics.

2.2.1 *Ambiguity tolerance*

Ambiguity tolerance refers to the way that different individuals respond or cope with ambiguous situations. An intolerance for ambiguity can be defined as a tendency to interpret an ambiguous situation as a source of threat; tolerance for ambiguity, in contrast, is the tendency to view ambiguous situations as desirable (Duncan 1972, Pratt 1980). Consequently, individuals with low ambiguity tolerance (1) tend to apply fixed traditional rules in a 'black and white' manner and (2) are slow to adapt to complex environments (MacDonald 1970).

Tolerance for ambiguity may be particularly relevant within a multidimensional performance evaluation system environment. Such a system can provide arguably ambiguous information; that is, information marked by what can be viewed as inconsistent and contradictory cues that do not easily integrate to provide one clear solution (Norton 1975, Liedtka *et al.* 2008). In fact, the very objective of the BSC is to avoid a simple, unambiguous decision choice based on one metric only. The decision maker often must consider and weigh multiple criteria with no one option dominating across all criteria (Kaplan and Norton 1996). Not only must the decision maker evaluate each subordinate on each criterion, the decision maker must also weigh the relative importance of each criterion when making a final judgement.

Dilla and Steinbart (2005a) found that BSC evaluations became much more difficult when performance cues did not provide consistent indications of relative performance. In these situations, individuals with low ambiguity tolerance are more apt to actively seek to reduce uncertainty by searching for information that immediately identifies a course of action that could provide a premature closure of the decision process (Frenkel-Brunswick 1949, MacDonald 1970). Once this information is processed and categorised, these individuals tend to downplay or ignore ambiguous cues that could be potentially useful in making a decision. That is, individuals with low ambiguity tolerance may feel uncomfortable with a performance evaluation task in which cues are inconsistent across comparative individuals and attempt to resolve the problem by focusing on a single financial measure (Liedtka *et al.* 2008). Financial measures tend to be less ambiguous than measures from other BSC categories and are operational measures that have been found to be given greater weight by ambiguity-intolerant individuals (Dermer 1973, Ittner *et al.* 2003b). In contrast, individuals with high ambiguity tolerance are more inclined to be comfortable in this decision process and be more thorough in their information search and use.

We propose that individuals who have low ambiguity tolerance will be more likely to focus on the financial measure and give higher ratings to the manager who demonstrates superior financial performance, regardless of the strategy map utilised. Further, these ambiguity-intolerant individuals are expected to be resistant to the balancing influence of the integrated strategy map, whereas the ambiguity-tolerant individuals are expected to be more receptive to it. Finally, we anticipate that the compensatory strategy map will have little or no influence on performance evaluations as individuals can more easily rationalise (fit) their own predisposition or biases with this non-dependency (arguably compensatory) strategy map. This reasoning leads to our first hypothesis:

> H1: Individuals who exhibit a low tolerance for ambiguity will rate higher those managers with superior financial performance irrespective of type of strategy map; while the judgements of individuals with a higher tolerance for ambiguity will be influenced by the type of strategy map.

2.2.2 *Functional (finance/accounting) background*

A well-designed BSC includes measures that align the organisation's strategic goals across the functional areas of accounting/finance, marketing, management and operations (Haywood and Stuart 2010). A person's work background (e.g. accounting/finance versus other business fields) may influence the degree to which they are receptive to the change in and expansion of corporate performance metrics. For instance, individuals whose work experience is in corporate accounting/finance might have a more difficult time de-emphasising the financial aspects of the BSC, and thus continue to exhibit greater short-term financial outcome bias than others.

Evidence suggests that people emphasise and/or frame information related to their functional background (Dearborn and Simon 1957, Blaskovich and Taylor 2009). Individuals' functional work areas may influence how they acquire and process information that influences their ultimate decision making (Hambrick and Mason 1984). That is, a person who receives a 'balanced' set of information may not actually process the information in a 'balanced' manner.

Kagot and Zander (1992) assert that individuals who identify with a specific functional area become biased in the manner in which they approach problems and that this behaviour can hinder coordination and cooperation with other business areas. Hitt and Taylor (1991) found that upper-level managers' decision making was associated with their functional background. In an enterprise risk management task, Blaskovich and Taylor (2009) showed that individuals with a financial orientation focused more on financial-related risks than individuals with varying functional backgrounds. In a BSC context, Haywood and Stuart (2010) revealed that individuals with financial experience tended to emphasise the financial characteristics of decision alternatives. In their study, individuals' investment decisions were directly related to their respective functional backgrounds. In our study, those individuals with financial work experience would be expected to be more apt to emphasise and focus upon the financial aspects of the BSC as compared to their non-financial oriented counterparts.

Thus, we expect that individuals who are predisposed toward a financial orientation will provide higher ratings of the manager who has superior financial performance, regardless of the strategy map utilised. These financially-oriented individuals are expected to be resistant to the influence of the integrated strategy map, whereas the non-financially oriented individuals are expected to be more receptive to this strategy map. This reasoning leads to our second hypothesis:

> H2: Individuals with a finance/accounting background will provide higher ratings of those managers with superior financial performance irrespective of type of strategy map; while the judgements of those individuals with a non-financial work background will be influenced by the type of strategy map.

3. Method

3.1. *Participants*

Participants consisted of 165 working professionals who were enrolled in MBA programmes located in Spain and the US. As such, they had taken basic accounting courses typical of most MBA programmes. While the BSC was a component of those courses at both schools, the BSC was not given special emphasis; the BSC was presented in a descriptive as opposed to a prescriptive manner. The research was not conducted in close temporal proximity to BSC coverage in the programme. Eighty-three students were from Spain; 82 students were from the US. The average age of these participants was 32 years; 70 per cent were male. About 70 per cent owned stock. Sixty-nine per cent had a background in business, with 81 per cent having had some on-the-job balanced scorecard experience.[2] See Table 1 for a more complete description of participant demographics.[3]

3.2. *Case materials*

Case materials were provided to participants during regular class time. Participants were not compensated for their time nor were they given class credit. However, given that the participants were graduate students, they appeared to be engaged in the case materials. The instructions indicated that participants were to assume the role of a member of a corporate personnel evaluation committee in a multi-division corporation. A diagram illustrating the performance goals of the managers was provided. That is, the divisional managers' long-term corporate goal was to increase shareholder value. The short-term corporate goals consisted of technology adoption

Table 1. Demographic profile of participants (n = 165).

Panel A: Continuous variables

Age (years)	US	Spain	Total
	30	34	32

Panel B: Discrete variables

	Level	US (%)	Spain (%)	Total (%)
Gender	Male	68	72	70
	Female	32	28	30
Technical background	Business	69	69	69
	Non-business	31	31	31
Own stock	Yes	88	51	69.5
	No	12	49	30.5
OTJ BSC experience	Yes	83	79	81
	No	17	21	19

Table 2. Preliminary scores for the balanced manager.

Focus	Criteria	Score
Development	Technology adoption index	5
Marketing	Customer satisfaction	6
Financial	Return-on-investment (ROI)	5
Process	Environmental/legal issues	6

(developmental focus), customer satisfaction (customer focus), ROI (financial focus) and environmental responsibility (process focus) goals.

The committee was charged with the task of evaluating the performance of two divisional managers being considered for promotion and transfer to corporate headquarters. Participants were provided with preliminary evaluation scores for each of the short-term goals. However, final recommendations remained for the participants to provide. The first manager exhibited relatively balanced strength in each of the four BSC areas. The total point value for this manager was 22. The preliminary scores for the first manager are shown in Table 2.

The second manager's strength was in the financial area, with a high ROI score. However, the total point value was also 22, or the same as his counterpart.[4] The preliminary scores for the financial manager are shown in Table 3.

3.3. *Independent measures*

The independent measures included: (1) tolerance for ambiguity (low, high), (2) functional background (financial, non-financial), and (3) type of strategy map provided (compensatory or integrated). To measure an individual's tolerance for ambiguity, we utilised the MacDonald (1970) instrument, which consists of 16 questions relating to a seven-point scale to assess individuals' agreement with each question. This instrument has been used extensively in the psychology and accounting literature (Bamber *et al.* 1989, Furnham and Ribchester 1995, Lowe and Reckers 1997, Grenier *et al.* 2005, Hartmann 2005). Participants' scores were partitioned at the median, with participants scoring 28 or less classified as 'low tolerance' and those scoring above 28 classified as 'high tolerance'.

Functional work background was measured in terms of participants either having a financial or non-financial background. Sixty-nine per cent of the participants had financial (accounting, finance) backgrounds; 31 per cent had non-financial (marketing, management, operations) backgrounds. These percentages were consistent across schools.

Two distinct graphic representations were provided. These strategy maps were contrasted based on the integral nature and dependency depicted in each strategy map. Taylor (2010) provides similar strategy map representations. Half of the participants received a strategy map consisting of performance measures grouped into four scorecard perspectives (Kaplan and Norton

Table 3. Preliminary scores for the financial manager.

Focus	Criteria	Score
Development	Technology adoption index	5
Marketing	Customer satisfaction	5
Financial	Return-on-investment (ROI)	8
Process	Environmental/legal issues	4

1992). This compensatory strategy map depicts these perspectives as primarily independent silos, with strength in one area being able to compensate for weaknesses in another area. The second strategy map is more strategically-linked, conveys an integrated perspective and is more congruent with the BSC philosophy (Kaplan and Norton 1996).[5]

3.4. *Control variable*

We designed our research study to include business school participants from two countries (Spain and the US). It was our objective to extend existing research to determine if BSC-related results were generalisable across cultures or whether differences exist that suggest the need for future research. We reasoned that acceptance of or resistance to BSC initiatives among managers may be dependent on individuals' culture given that cultures have historically differed on matters that appear highly germane to the acceptance of a BSC approach. For instance, in collectivist cultures such as Spain, cultural mechanisms tend to promote a long-term perspective and the importance of one's interdependence with others (Frucot and Shearon 1991, Chan *et al.* 2003). Accordingly, the traditional national values found in Spanish firms more closely conform to those promoted by the BSC and as such suggest the likelihood of greater acceptance of BSC initiatives. Conversely, the US culture is based on individual rewards and accomplishments.[6] This emphasis is espoused in the idea of shareholder value, which imposes a financial orientation within the firm (Kaplan and Norton 1996). The BSC was instituted in the US to overcome managers' short-term financial emphasis on current period financial measures such as net income, net profit margin and return-on-investment (ROI). Therefore, one might expect Americans to emphasise short-term, financial metrics and to be more resistant to the goals of the BSC. Given the potential influence of participants' MBA programme location (Spain or the US) on BSC results, we included country (culture) as an experimental control variable.

4. Results

The research design was operationalised as a completely crossed 2^4 quasi-experimental design, with the independent measures consisting of tolerance for ambiguity, functional background and type of strategy map provided; the participant's MBA programme location served as an experimental control variable. The dependent measure is the evaluation of two divisional managers who were being considered for promotion and transfer to the corporate headquarters. Specifically, participants were instructed to, 'Divide 100 points between two divisional managers, with more points indicating a higher evaluation as divisional managers.' The dependent measure was the number of points allocated to the (financial) manager with the higher ROI scores.[7] The ANOVA results are shown in Table 4. The means (and standard deviations) related to the two-way interactions are provided in Table 5; the main effect means are shown in the Marginal columns and rows.

Hypothesis 1 predicted that ambiguity-intolerant individuals will be more apt to focus on the financial measure in their BSC performance evaluations (but be resistant to the influence of strategy maps). Further, individuals with high ambiguity tolerance are predicted to be receptive to the integrated strategy map, resulting in relatively equal evaluation of the respective managers. The ANOVA results indicate a significant main effect for tolerance of ambiguity ($F = 3.917$, $p = 0.05$). An examination of the marginal cell means shows that ambiguity-intolerant individuals (56.39) assigned more points to the manager exhibiting a higher financial score than ambiguity-tolerant individuals (52.93). A significant ambiguity tolerance by strategy map interaction also manifests itself ($F = 5.319$, $p = 0.022$). An examination of the interaction cell means indicates that the findings are primarily driven by responses from participants in the high tolerance/

Table 4. ANOVA results (dependent variable: points assigned to the higher ROI manager).

ANOVA Table

Source of variation	Type 1 SS	df	MS	F	Sig.
Corrected model	3283.70	15	218.91	1.870	0.031
Intercept	306470.29	1	306470.29	2617.784	< 0.001
Strategy map	43.41	1	43.31	0.371	0.544
Functional background	77.59	1	77.59	0.663	0.417
Culture	543.71	1	543.71	4.644	0.033
Ambiguity tolerance	458.59	1	458.59	3.917	0.050
Strategy map * Functional background	778.58	1	778.58	6.650	0.011
Strategy map * Culture	467.50	1	467.50	3.993	0.048
Functional Background * Culture	87.97	1	87.97	0.751	0.387
Strategy Map * Ambiguity tolerance	622.75	1	622.75	5.319	0.022
Functional background * Ambiguity tolerance	3.25	1	3.25	0.028	0.868
Culture * Ambiguity tolerance	34.90	1	34.90	0.298	0.586

integrated map condition (50.20). Individuals in this condition allocated 100 points essentially equally across division managers. Thus, the integrated strategy map had the effect of levelling the evaluations of these individuals consistent with both managers exhibiting 22 points across the four perspectives. Those intolerant of ambiguity, on the other hand, emphasised financial outcomes. These results provide support for H1.

Hypothesis 2 predicted that individuals with a financial work background would place relatively greater weight on the financial measure in their BSC performance evaluations as compared to individuals with a non-financial background. These financially-oriented individuals are expected to be resistant to the influence of the integrated strategy map that promotes balance, whereas the non-financially-oriented individuals are expected to be receptive to this balance-promoting strategy map. Our results indicate that, although those individuals with a financial work background provided higher ratings of the manager who scored higher on the financial measure, the main effect was not significant at traditional levels.

However, the strategy map interaction with functional background was significant ($F = 6.65$, $p = 0.011$). Those respondents with a functional background in the financial area (e.g. accounting, finance) were significantly influenced by the strategy map; however, those with a non-financial background were not likewise affected. Specifically, financially-oriented individuals, when given a compensatory map, provided a mean response (58.10) that was significantly higher than those of participants with a non-financial background (52.07) and significantly higher than those with a financial background under the integrated map condition that promotes balance (52.44). The integrated strategy map had the effect of levelling the evaluations of those with a financial background. While the integrated strategy map had the intended effect, we had reasoned that it would affect individuals with non-financial backgrounds. Unlike our experience with tolerance of ambiguity, the compensatory map did not provide a neutral baseline. Therefore, these results provide mixed results for H2.

We also examined the country (culture) experimental control variable to determine its influence on the dependent measure. The ANOVA results show a significant main effect for culture ($F = 4.644$, $p = 0.033$). Spanish participants gave more points to the manager exhibiting relative financial strength (56.48) than did participants from the US (52.63). In addition, a significant interaction between type of strategy map and culture emerges ($F = 3.99$, $p = 0.048$). The type of strategy map had a significant effect on respondents from the US MBA school but did not significantly influence individuals from the Spanish MBA school. The

Table 5. Means, standard deviations, and cell sizes (dependent variable: points assigned to the higher ROI manager).

Panel A: Ambiguity tolerance

	Ambiguity tolerance		
	Low	High	Marginal
Strategy map Compensatory	54.80 (9.62) n = 42	55.40 (12.25) n = 41	55.10 n = 82
Strategy map Integrated	57.81 (11.56) n = 46	50.20 (10.58) n = 37	54.42 n = 83
Marginal	56.39 n = 87	52.93 n = 78	

Panel B: Functional background

	Functional background		
	Non-financial	Financial	Marginal
Strategy map Compensatory	52.07 (12.64) n = 33	58.10 (9.34) n = 49	55.67 n = 82
Strategy map Integrated	55.57 (13.83) n = 35	52.44 (9.37) n = 48	53.76 n = 83
Marginal	53.87 n = 68	55.30 n = 97	

Panel C: Culture

	Culture		
	US	Spain	Marginal
Strategy map Compensatory	54.95 (11.01) n = 41	55.23 (11.06) n = 41	55.09 n = 82
Strategy map Integrated	50.31 (9.54) n = 41	57.70 (12.73) n = 42	54.05 n = 83
Marginal	52.63 n = 82	56.48 n = 83	

integrated strategy map had the effect of de-biasing responses for participants at the US MBA school and the effect of levelling the evaluations (i.e. 50 – 50). Thus, US participants were more likely to be receptive to the balancing communications of an integrated strategy map than Spanish participants.[8]

5. Conclusions and implications

Multidimensional performance measurement systems were developed to overcome the tendency of managers to over-rely on short-term financial measures. Empirical and anecdotal evidence, however, has been mixed as implementations of the BSC have not always achieved their desired objectives. In this study we examine certain factors that might account for some of these mixed results. That is, we examine under what conditions (e.g. differing strategy maps, individual differences) initiatives may be more or less successful.

We find that, overall, a financial emphasis still persists among many participants. However, our research also indicates that certain forms of corporate strategy communication can ameliorate that bias among individuals who have a high tolerance for ambiguity and/or have a finance/accounting work background. The accounting research literature to date has paid scant attention to the communication of corporate strategy, although business entities incur significant costs in communicating strategy, internally as well as externally. One of two types of strategy map examined in this study (the integrated strategy map) exhibited a consistent moderating effect.

This study makes several contributions worth noting. First, we examine three factors that have received little if any attention in the literature that may provide insight into the performance evaluation process where multidimensional performance measures are provided. It is interesting that much of the recent research in the BSC area has focused upon the mitigation of the common-measures bias (e.g. Banker *et al.* 2004, Libby *et al.* 2004, Roberts *et al.* 2004, Dilla and Steinbart 2005b), while ignoring the possibilities of other factors and biases that may impact on the performance evaluation process. Our results suggest that the variables examined in our study warrant consideration for inclusion in future, related, studies.

Second, we note that much of the recent research in the BSC area has become increasingly attentive to operational conditions during BSC implementation but has neglected strategy communication, which is critical to employee 'buy-in'. An extensive organisational justice literature confirms that performance review-related initiatives will encounter debilitating resistance (if not subversion) without cogent communication and 'buy-in' (Johnson *et al.* 2008). Given that the primary means of communicating a BSC corporate strategy is through strategy maps, future research is needed to examine the plethora of variations of strategy maps in industry to determine their effects on the implementation and success of the BSC.

Third, we demonstrate the role of strategy maps in communicating BSC initiatives, and identify the potential of a well-designed strategy map to influence 'receptive' individuals. An integrated strategy map was able to counter a documented short-term financial outcomes fixation/bias and thereby apply a levelling process such that equivalent ratings were forthcoming to managers with equivalent overall scores. However, our study also revealed that it may not always be intuitive as to which individuals may be more or less receptive to the influence of strategy maps. More theory and experimentation is needed to better understand how strategy maps may be utilised effectively.

Fourth, our findings indicate that an emphasis on short-term financial outcomes is not exclusively a North American problem. One can conjecture that this fixation is one more US export to the rest of the world and has occurred simultaneously with increasingly large corporate incentive packages based on current financial results. Alternatively, it may reflect successful past and current efforts by US industry and academic programmes to combat a universal short-term financial fixation. Given the limited research on cross-cultural effects of BSC acceptance, more research in this area is needed.

Finally, the results of our study should be interpreted in light of the following limitations. First, this study utilised MBA students as participants, although we point out that all had significant prior business experience and a large majority of them had experience with the BSC.

Second, our participants, while motivated, may not have responded as they would have under real-world conditions; ours was a laboratory study with all of its inherent limitations. Third, we only examined the BSC, which is only one element of an organisational MCS package (Malmi and Brown 2008). Future research should identify how the BSC is connected to performance evaluation as a whole, including other MCS such as budgeting (how the budget targets link to the BSC).

Acknowledgements

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Notes

1. Malina *et al.* (2007) demonstrate by econometric validation that statistically significant causal relations (routinely assumed by proponents of the BSC) could not be found in the BSC of the Fortune 500 firm they studied. However, this did not hinder its use or affect satisfaction with the BSC at the target Fortune 500 firm.
2. While we were interested in other demographics in addition to the ones we sought information on, we were careful not to ask certain personal questions that might be considered to be sensitive for participants (e.g. family income level, personal net worth, etc.).
3. Participant demographics may have an influence on the dependent measure either individually or by their interaction with other independent variables. Age was included as a potential covariate in our analysis; gender, stock ownership and BSC experience were included as additional discrete factors. Age was not found to be significant as a potential covariate. Further, none of our discrete variables were significant in our analysis either by themselves or in their interaction with the other independent variables.
4. Pilot studies examined a number of performance outcome alternatives and resulting performance evaluation judgements and a number of projected outcomes for capital investment proposals and resulting investment allocation judgements, including, but not limited to, the following example. Results consistently exhibited a preference for alternatives with higher financial numbers, even when the aggregate score was lower relative to the other alternatives.
5. All experimental research to some degree must abstract reality and sacrifice mundane reality. In pilot studies we consider more complex and elaborate cause and effect maps, which served only to demand significantly more research participant time-on-task.
6. The US has the highest individualism score (91) as contrasted with the moderate to low individualism score for Spain (51) (see Hofstede 2009).
7. The rationale for designing the dependent measure in this manner was to provide a more indirect or subtle means of obtaining participants' performance evaluations.
8. While these results are not intuitive, an explanation may lie in the students' two very different business schools, each with its own unique MBA culture. The participating MBA school located in Spain is an 'elite' world-class private institution, as evidenced by alumni high salaries and significant career advancement. One might speculate that students from elite schools may be more apt to equate 'success' more narrowly with financial success. Thus, individuals from the 'elite' MBA school in Spain might be expected to emphasise short-term, financial metrics and to be more resistant to the goals of the BSC. Given the perceived influence of participants' MBA programme location (Spain or the US) on BSC results, further research may be warranted.

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Earnings components and the asymmetric timeliness of earnings: the case of FRS 3 in the UK

ANN L.-C. CHAN[a]*, STEPHEN W.J. LIN[b] and NORMAN STRONG[c]

[a]*Department of Accounting, National Chengchi University, Taipei, Taiwan;* [b]*School of Accounting, College of Business Administration, Florida International University, Florida, USA;* [c]*Accounting and Finance Group, Manchester Business School, University of Manchester, Manchester, UK*

We exploit a unique setting to examine how an accounting regulation change affects the asymmetric timeliness of earnings. Financial Reporting Standard No. 3: Reporting Financial Performance (FRS 3) changed the way listed UK companies recognised bad news through ordinary or extraordinary items. FRS 3 tightened the definition of extraordinary items but gave wider discretion in classifying exceptional items. The results were that, after FRS 3, the asymmetric timeliness of earnings before extraordinary items increased and the association of earnings conservatism with discretionary accruals was weaker.

Keywords: conservatism; earnings components; FRS 3

1. Introduction

This study contributes to the conservatism literature by investigating how accounting choices and conservatism are related. Conservatism is one of the most influential accounting conventions, influencing accounting practice for centuries. A caricature of earnings conservatism is 'anticipate no gains, anticipate all losses' (Watts 2003). Basu (1997) defines conservatism as the tendency to require higher verification to recognise good news as gains than bad news as losses. Beaver and Ryan (2005) identify two types of accounting conservatism: unconditional (accounting-based, ex-ante or balance sheet) and conditional (market-based, ex-post or earnings). Understating net asset book values (Feltham and Ohlson 1995, Ohlson 1995) corresponds to unconditional conservatism, while the asymmetric recognition in earnings of good and bad news (Basu 1997) corresponds to conditional conservatism.

Despite extensive research, disagreement remains on the extent to which earnings conservatism affects the quality of earnings and financial reporting. Watts (2003) argues that earnings conservatism is pervasive and significantly benefits financial reporting. Research shows that

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*Corresponding author. Email: lcchan@nccu.edu.tw

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earnings conservatism controls agency problems between management and shareholders (LaFond and Roychowdhury 2008, LaFond and Watts 2008). Empirical studies recognise the benefits of conservatism in financial reporting from contracting and litigation perspectives (Qiang 2007, Garcia Lara *et al.* 2009b, Hui *et al.* 2009). However, standard setters typically view conservatism in financial reporting as undesirable because of potential conflicts between the qualitative characteristics of financial information (IASB 2008). Penman and Zhang (2002) and Hanna (2003) offer support for this view.

We use Financial Reporting Standard No. 3: Reporting Financial Performance (FRS 3) (ASB 1992) as an example to show the extent to which a change in accounting regime constrained managerial discretion and influenced the way UK companies recognised bad news through accruals.[1] No empirical study has used this unique accounting regime setting to test how earnings components affect the asymmetric timeliness of earnings. In contrast to prior studies (Pope and Walker 1999, Garcia Lara *et al.* 2005), we analyse how earnings conservatism manifested by the differential speed in recognising economic gains and losses was carried out through discretionary accruals, non-operating exceptional items and extraordinary items pre- and post-FRS 3. Several studies indicate that FRS 3 improved the UK's accounting information environment (Acker *et al.* 2002, Lin 2002, 2006, Athanasakou *et al.* 2007, 2010, Chan *et al.* 2009). However, there is little evidence of its impact on earnings conservatism, and we fill this gap. FRS 3 required firms to report key components of performance in the profit and loss account and tightened the definitions of and requirements for disclosing exceptional and extraordinary items. As such, FRS 3's provisions are likely to have influenced how companies communicated information to investors and classified bad news as losses.

We partition earnings into cash flow from operating activities and total accruals, and divide total accruals into working and non-working capital accruals. Within total accruals, we estimate discretionary and non-discretionary components and partition non-working capital accruals into depreciation, write-downs and write-offs of fixed assets, amortisation and write-downs and write-offs of intangible assets, and exceptional and extraordinary items. We find that the asymmetric timeliness of earnings before extraordinary items increased after FRS 3 and the association of earnings conservatism with discretionary accruals was weaker after FRS 3. This suggests that FRS 3 improved the UK's financial reporting system, resulting in more companies reporting conservatively. These results are robust to alternative measures of abnormal accruals and to applying a piecewise linear accruals–cash flow model (Ball and Shivakumar 2005). Athanasakou *et al.* (2010) report that FRS 3 reduced earnings management through discretionary accruals. We add to this result by showing that earnings conservatism through discretionary accruals declined after FRS 3. Moreover, while Athanasakou *et al.* (2007) show that UK firms increased their recognition of non-operating exceptional items post-FRS 3, we show that aggregate non-operating exceptional items were less associated with earnings conservatism after FRS 3 than were extraordinary items before FRS 3. These findings fill a gap in the conservatism literature by showing the impact of an accounting standard on the reporting of bad news through earnings components subject to managerial choices.

The following section reviews prior earnings conservatism studies and the UK institutional environment. Section 3 develops research hypotheses on the relation between earnings conservatism and accruals components and the impact of FRS 3. Section 4 explains our research method, including the measurement of earnings conservatism and the estimation of discretionary accruals. Section 5 describes the sample, while Section 6 presents empirical results on the association between earnings conservatism and earnings components and the impact of FRS 3. Section 7 concludes.

2. Literature and institutional overview

2.1 *Conditional vs. unconditional conservatism*

Unconditional conservatism involves persistently understating net assets, for example through the immediate expensing of R&D or adopting accelerated depreciation and shorter asset lives, and is independent of future changes in cash flow. Several studies argue that unconditional conservatism limits the degree of conditional conservatism (e.g. Beaver and Ryan 2005), since firms with lower net asset values have less scope to write down assets. Proxies used in empirical research to measure unconditional conservatism include the market to book ratio, Penman and Zhang's (2002) C-score, the constant term of an augmented earnings–return regression (Basu 1997) or Beaver and Ryan's (2000) bias component. Conditional conservatism involves a greater degree of managerial discretion, as firms may use different verifiability criteria to recognise economic gains and losses. Garcia Lara *et al.* (2005) show that, in institutional contexts where there is weaker investor protection and less dispersed ownership structure, earnings management is a significant factor in earnings conservatism. Ball *et al.* (2000) compare the difference in timeliness in incorporating economic losses between common and code law countries. They argue that shareholder oriented countries such as the UK rely more on public disclosure to reduce the information asymmetry between managers and investors, resulting in greater asymmetric timeliness of earnings in recognising good and bad news. As it can reduce agency costs and facilitate the monitoring of managers, earnings conservatism is an important feature of shareholder-orientated countries.

Academic research generally concludes that earnings conservatism is pervasive and has significant benefits for financial reporting as it addresses moral hazard problems and constrains managers' opportunistic behaviour in reporting biased accounting measures. Watts (2003) provides four main explanations for earnings conservatism – namely, contracting incentives, taxation, litigation and regulation – and argues that earnings conservatism can increase firm value by reducing contracting and litigation costs. Empirical findings in Qiang (2007) and Garcia Lara *et al.* (2009b) support the view that reporting conservatively can reduce contracting and litigation costs. Hui *et al.* (2009) find that conservatism reduces information asymmetry, expected litigation costs and the frequency of management forecasts. LaFond and Roychowdhury (2008) and LaFond and Watts (2008) show that conservatism alleviates information asymmetry by constraining managers' opportunistic behaviour in overstating reported earnings and by helping investors to assess alternative sources of information for equity values.

Empirical evidence consistently depicts earnings conservatism as benefitting investors. Beekes *et al.* (2004), Ahmed and Duellman (2011) and Garcia Lara *et al.* (2009a) show that better governed firms report more conservative earnings. Garcia Lara *et al.* (2009a) show that corporate governance is a significant determinant of firm-specific differences in earnings conservatism among US firms and that better governed firms use discretionary accruals to inform investors about bad news in a timelier manner. Consistent with other studies (LaFond and Roychowdhury 2008, LaFond and Watts 2008), their results imply that conservatism is an important corporate governance mechanism.

From a contracting perspective, conservative reporting mitigates bondholder– shareholder conflicts (Ahmed *et al.* 2002, Ball *et al.* 2008, Zhang 2008). Ball *et al.* (2008) show that debt contracting is one of the main determinants of earnings conservatism. Ahmed *et al.* (2002) report that firms facing severe bondholder–shareholder dividend policy conflicts report more conservatively and that more conservative firms incur lower costs of debt. Zhang (2008) also shows that conservatism benefits both borrowers and lenders and improves debt contracting. Specifically, Zhang finds that conservatism benefits lenders ex-post through the timely signalling of default risk and benefits borrowers ex-ante through lower interest rates. Empirical findings on the demand for earnings conservatism from debt markets contrast with the views of accounting standard setters. Ball *et al.* (2008) indicate that the contrast between academic and regulator views may result from confusion between conditional and unconditional conservatism and their economic consequences or a misunderstanding that the demand for financial reporting originates mainly in equity markets.

Analytical work by Guay and Verrecchia (2007) and Suijs (2008) suggests that the asymmetric timeliness of earnings affects firm values and costs of equity capital. Guay and Verrecchia (2007) show that a policy of full disclosure, including the timely recognition of losses, leads to lower costs of equity capital. Suijs (2008) shows that, in a setting with overlapping generations of shareholders, investing in a firm with a life cycle longer than shareholders' investment horizons, the volatility of future prices determines investment risk. Thus, reporting policy becomes a primary determinant of investment risk and more informative disclosure of bad news reduces costs of equity capital by improving risk sharing across generations of shareholders. Based on a firm-specific conservatism measure developed by Callen *et al.* (2010), Garcia Lara *et al.* (2011) show that the asymmetric recognition of economic gains and losses lowers costs of equity capital by increasing bad news reporting precision. They find a significant negative relation between conditional conservatism and both excess average stock returns and implied costs of capital in the US over the period 1975–2003. Li (2009) shows that firms in countries with more conservative reporting systems have significantly lower costs of debt and equity, confirming that accounting conservatism provides cost-reducing benefits for firms.

Greater earnings conservatism can also lead to improved investment efficiency (Ahmed and Duellman 2011, Francis and Martin 2010, Bushman *et al.* 2011). Francis and Martin (2010) show that conservatism results in more profitable acquisition decisions in the presence of agency costs. They find that firms reporting more conservatively make more profitable acquisitions, as evidenced by ex-ante larger announcement returns, ex-post higher operating performance and fewer but more timely divestiture decisions. The association between timely loss recognition and acquisition profitability is stronger for firms experiencing greater ex-ante agency costs measured by stock return volatility and bid–ask spread. Ahmed and Duellman's (2011) findings imply that conservatism plays an important role in giving managers ex-ante incentives to reject negative NPV projects and in ex-post monitoring of their investment decisions, confirming the predictions of Watts (2003) and Ball and Shivakumar (2005). Thus, firms that adopt more conservative accounting are less likely to take large special item charges in the future. Bushman *et al.* (2011) also show that earnings conservatism affects a firm's capital allocation decisions. Consistent with Ahmed and Duellman (2011) and Francis and Martin (2010), they find timely loss recognition disciplines managers' investment decisions.

Overall, extensive evidence shows the benefits of earnings conservatism for corporate governance, which in turn enhances accounting quality and firm value. As unconditional conservatism introduces biases that do not provide benefits to financial statement users (Ball and Shivakumar 2005), we base our main analysis on conditional (earnings) conservatism.

2.2 *The institutional environment and FRS 3*

This study uses the UK setting to investigate the earnings components that drive earnings conservatism and to examine how accounting regulation can constrain managerial discretion over conservative reporting. The UK Accounting Standards Board introduced FRS 3 on 29 October 1992 (ASB 1992). One of the ASB's key intentions was to shift investor focus from a single earnings-based measure to a broader range of performance measures (Guntert 1995, Lin 2006). To achieve this, FRS 3 introduced several key changes. First, to highlight key components of performance, it redesigned the profit and loss account into a layered format. It required firms to highlight key components of performance, such as operating profit from continuing, discontinued and acquired operations, on the face of the profit and loss account (FRS 3, §14). Second, to address concerns about the manipulation of earnings per share (EPS) by misclassifying exceptional and extraordinary items,[2] it effectively proscribed extraordinary items and tightened the requirements for disclosing exceptional items.[3]

Third, FRS 3 changed the way firms disclosed exceptional items in the profit and loss account and notes. Under SSAP 6 'Extraordinary items and prior year adjustments' (ASC 1986), firms aggregated exceptional items on the face of the profit and loss account under one heading. In contrast, FRS 3 required firms to distinguish operating from non-operating exceptionals and to attribute them to continuing or discontinued operations. Firms had to show non-operating exceptionals including profit or loss on the sale or termination of an operation, costs of a fundamental reorganisation or restructuring, and profit or loss on the disposal of fixed assets separately on the face of the profit and loss account after operating profit and before interest (FRS 3, §20).[4] FRS 3's provisions gave managers wider discretion in classifying exceptional items. Empirical evidence shows that firms disclosed a variety of items as operating exceptionals and there was a significant increase in negative non-operating exceptional items after FRS 3 (Athanasakou *et al.* 2007, 2010). Lin and Walker (2000) argue that non-operating exceptionals were items that firms reported as extraordinary before FRS 3.

Fourth, firms could report alternative EPS figures unaffected by the transitory nature of exceptional and extraordinary items, as long as they disclosed EPS after extraordinary items at least as prominently as any other EPS they chose to report. There is evidence of increasing numbers of firms reporting alternative EPS based on pre-exceptional earnings post-FRS 3 to highlight sustainable performance (Choi *et al.* 2007).

Several empirical studies have examined the economic consequences of FRS 3. Acker *et al.* (2002) and Lin (2002) find improved earnings forecasts after FRS 3. Acker *et al.* (2002) argue that FRS 3's additional disclosure requirements improved current performance assessments and future cash flow predictions, resulting in improved analyst forecast accuracy. Lin (2006) shows that the additional performance components in the profit and loss account, reconciliation of movements in shareholders' funds and alternative earnings measures were generally associated with share returns and provided incremental information beyond net income. Athanasakou *et al.* (2007) argue that FRS 3's provisions increased the scope for using classificatory choices to highlight persistent profitability, and find that the increased flexibility in classifying non-recurring items resulted in increased classificatory smoothing and decreased smoothing through accruals. Athanasakou *et al.* (2010) provide further evidence of a reduction in earnings management through accruals and an increase in the persistence of sustainable earnings following FRS 3. Chan *et al.* (2009) provide evidence showing that, following the introduction of FRS 3, the accrual anomaly was reduced in the UK, and this effect was more pronounced among companies with poorer accounting information quality. Their findings suggest that regulatory interventions seeking to improve accounting information quality can reduce the mispricing of accruals. Given FRS 3's relevance for reported earnings, it is likely to have affected earnings conservatism. We expect that FRS 3 led to a lower impact of discretionary accruals on earnings conservatism as the change in the accounting regime led to more homogenous and less opportunistic choices by companies.

3. Earnings conservatism, FRS 3 and hypothesis development

The essence of earnings conservatism is to recognise economic losses earlier than economic gains, resulting in the asymmetric timeliness of reported earnings. The accruals process alleviates timing and matching problems by incorporating past and future cash flow into earnings, which better captures firm performance. Evidence shows that both short- and long-term accruals provide incremental information to the market, though they may play different roles (Dechow

1994, Guay and Sidhu 2001). Short-term accruals adjust operating cash flows that occur one year before or after accruals are recorded and generally reverse within one year (e.g. changes in inventory, debtors and creditors), while long-term accruals such as depreciation and amortisation mitigate timing and matching problems over longer intervals and are the result of operating, investing and financing activities (Guay and Sidhu 2001). Guay and Sidhu find that long-term accruals mitigate timing and matching problems in much the same way as short-term accruals but over longer durations. Dechow and Ge (2006) investigate earnings persistence based on the sign and magnitude of accruals and argue that managers of low accruals firms are likely to make accruals adjustments to revalue net assets, resulting in the recording of restructuring charges, goodwill impairment and other special items.[5] They argue that accruals provide timely loss recognition, particularly through non-current accruals and the transitory nature of special items. As non-working capital accruals relate to changes in the value of long-term assets or liabilities – including depreciation, amortisation, depletion, one-time events such as asset write-downs and write-offs, and exceptional and extraordinary items – and are generally negative as most are costs or charges, we should observe non-working capital accruals and their components being more associated with economic losses (bad news) than working capital accruals.

Earnings conservatism manifested through timely loss recognition is an effective governance mechanism that reduces managers' ability to manipulate financial performance as it provides early warning signals to managers and triggers prompt investigation of reasons for bad news (LaFond and Watts 2008, Garcia Lara *et al.* 2009a). Existing studies document that earnings conservatism measures are sensitive to earnings components. Pope and Walker (1999) find that UK firms were more (less) conservative than US firms based on pre-FRS 3 earnings after (before) extraordinary items. Pae (2007) examines a sample of over 63,000 firm–year observations in the US during 1988–2003 and finds that earnings conservatism reflected in accruals is mainly the result of unexpected (discretionary) accruals. Garcia Lara *et al.* (2005) document an insignificant difference in earnings conservatism between stakeholder- and shareholder-orientated countries and predict that this is the result of the effect of earnings management on reported earnings. After excluding the effect of earnings management from earnings, earnings conservatism remains statistically significant in the UK but is insignificant in both France and Germany. Their findings suggest that earnings management and earnings conservatism are correlated in stakeholder-orientated countries, where firms deliberately depress their earnings to reduce tax payments or to shift earnings to future periods. Earnings conservatism remains for UK firms after excluding the effect of earnings management.

Both a firm's ordinary business operations and management judgement determine accruals (Basu 1997, Ball *et al.* 2000, Garcia Lara *et al.* 2005). A firm's regular business operations and operating growth determine non-discretionary accruals. Discretionary accruals capture deviations from this normal relation as the result of managers exercising their judgement over accounting choices and estimates within GAAP. Applying matching and revenue recognition provides managers with choices over discretionary accruals. Managers may manage earnings through accruals either for opportunistic reasons or to communicate sustainable future earnings.

In the UK, there is evidence of companies using extraordinary items to smooth income before FRS 3 (Beattie *et al.* 1994) and to classify bad news (Pope and Walker 1999). Evidence also shows that UK firms used abnormal accruals to smooth earnings and communicate private information to the market (Peasnell *et al.* 2000a). Athanasakou *et al.* (2010) argue that companies use discretionary accruals to smooth income and highlight persistent earnings if the financial reporting framework does not allow them to convey private information about the firm's future performance. They find a reduction in earnings management through accruals after the introduction of FRS 3.

FRS 3 outlawed extraordinary items and gave firms discretion in classifying exceptional items to distinguish between recurring and non-recurring income and provided an option to report alternative EPS. There is evidence that users focused on earnings before exceptional items post-FRS 3 (Lin and Walker 2000, Choi *et al.* 2007), and firms increased classificatory smoothing and decreased income smoothing through discretionary operating accruals (Athanasakou *et al.* 2010). The additional disclosure of earnings components, tighter definitions of non-operating exceptional and extraordinary items, and the option to report alternative EPS under FRS 3 likely affected how firms classified bad news as extraordinary, operating exceptional or non-operating exceptional items. As FRS 3 reduced the need to use discretionary accruals to smooth earnings (Athanasakou *et al.* 2010), we expect that FRS 3 led to more firms using accounting choices to recognise losses in a timely fashion. This makes accrual models less likely to classify these accounting choices as discretionary accruals, which leads to our first hypothesis:

> H1: FRS 3 decreased the asymmetric timeliness of earnings through discretionary accruals.

As explained in section 2.2, FRS 3 addressed concerns about earnings manipulation through the misclassification of exceptional and extraordinary items and gave companies wider discretion in classifying exceptional items, tightened the requirements for disclosing exceptional items and proscribed extraordinary items. Non-operating exceptional items post-FRS 3 were items that firms reported as extraordinary items pre-FRS 3 (Lin and Walker 2000). Given that FRS 3 had a direct impact on the reporting of non-current accruals and transitory items, we expect FRS 3 to have reduced the impact of non-operating exceptional items on earnings conservatism, giving rise to the hypothesis:

> H2: The asymmetric timeliness of earnings through non-operating exceptional items post-FRS 3 was lower than that through extraordinary items pre-FRS 3.

UK companies were subject to attempts to improve the British system of corporate governance during our test period. Foremost amongst these were the recommendations in the Cadbury Report (1992) on the role of non-executive directors (Peasnell *et al.* 2000b). To improve the quality and integrity of accounting information, the Cadbury Report focused on the board of director's monitoring responsibilities and emphasised the role of non-executive directors in monitoring management. Peasnell *et al.* (2000b) find less income-increasing accruals management to avoid losses or earnings declines for firms with higher proportions of non-executive directors in the post-Cadbury period. Peasnell *et al.* (2005) confirm the influence of board monitoring on the incidence of earnings management. However, Athanasakou *et al.* (2010) find that FRS 3 rather than Cadbury was responsible for their findings of an increase in classificatory smoothing and a decrease in the smoothing effect of abnormal working capital accruals. This alleviates concerns over the extent to which our findings on discretionary accruals may be confounded by the role of corporate governance in constraining earnings management.[6]

4. Research methods

Basu (1997) estimates earnings conservatism using the following model:

$$\frac{X_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 RET_{it} + \alpha_3 D_{it} RET_{it} + \varepsilon_{it}, \tag{1}$$

where earnings, X_{it}, is scaled by prior year-end share price, P_{it-1}, RET_{it} is annual stock return and D_{it} is a dummy variable equal to one when RET_{it} is negative, zero otherwise.[7] Corresponding to the theoretical model of Pope and Walker (1999), α_0 captures the cost of equity and the effect of prior year news and α_1 has an expected value of zero. The parameter α_2 is the good news earnings response and α_3 is the incremental earnings response to bad news. The bad to good news ratio, which controls for the cost of capital across time, is $(\alpha_2 + \alpha_3)/\alpha_2$. Because we use individual earnings components as the dependent variable, we make predictions only about the sign of the bad news slope coefficient. If earnings components reflect conservatism, the incremental bad news slope, α_3, should be positive.

We expect to find that non-working capital accruals contributed more than working capital accruals to timely loss recognition and that the effect of non-operating exceptionals post-FRS 3 was smaller than that of extraordinary items pre-FRS 3. This would lead to a greater bad news coefficient (α_3) for non-working capital accruals than other accruals components and for post-FRS 3 non-operating exceptionals than pre-FRS 3 extraordinary items. We also expect the magnitude of α_3 for discretionary accruals to be lower post-FRS 3.

To estimate discretionary accruals, in the spirit of Jones (1991) we run the regression

$$\frac{TACC_{i,j,t}}{TA_{i,j,t-1}} = \beta_{0,j,t}\frac{1}{TA_{i,j,t-1}} + \beta_{1,j,t}\frac{\Delta REV_{i,j,t}}{TA_{i,j,t-1}} + \beta_{2,j,t}\frac{PPE_{i,j,t}}{TA_{i,j,t-1}} + \varepsilon_{i,j,t}, \tag{2}$$

where $TA_{i,j}$, $\Delta REV_{i,j}$ and $PPE_{i,j}$ are total assets (DS392), change in total revenues (DS104) and gross property, plant and equipment (DS330) for firm i in industry j. Total accruals ($TACC$) is change in non-cash working capital plus depreciation and amortisation (DS445 + DS448 − DS417 + DS1012 − DS136 − DS562). Industrial classification is based on Datastream Level 3. Running the cross-sectional regression for each industry–year gives our estimates of abnormal or discretionary accruals ($DACC$) and of normal or non-discretionary accruals ($NDACC$) as[8]

$$\begin{aligned} DACC_{i,j,t} &= \frac{TACC_{i,j,t}}{TA_{i,j,t-1}} - NDACC_{i,j,t} \\ &= \frac{TACC_{i,j,t}}{TA_{i,j,t-1}} - \left[\hat{\beta}_{0,j,t}\frac{1}{TA_{i,j,t-1}} + \hat{\beta}_{1,j,t}\frac{\Delta REV_{i,j,t}}{TA_{i,j,t-1}} + \hat{\beta}_{2,j,t}\frac{PPE_{i,j,t}}{TA_{i,j,t-1}}\right] \end{aligned} \tag{3}$$

Regressions based on the modified Jones model, which adjusts for changes in debtors, gives similar results.

5. Sample description

The sample comprises all December fiscal year-end UK non-financial firms over the period 1983–2002. The sample excludes firms whose accounting periods cover more than 380 or less than 340 days. All relevant accounting and market data are from Datastream. The study examines three earnings measures: earnings before extraordinary and exceptional items (DS182); earnings after exceptional and before extraordinary items (DS182 + DS194 for the period 1983–1992; DS1087 − DS193 for the period 1993–2002); and earnings after exceptional and extraordinary items (DS182 + DS193 + DS194 for the period 1983–1992; DS1087 for the period 1993–2002). After deleting firms with missing data to estimate discretionary accruals, the final sample includes 6132 firm–year observations for 957 firms. Tables report pooled regression results and t-statistics based on Huber–White standard errors following Petersen (2009), clustered by firm and year to control for cross-sectional and time-series correlation. Untabulated results using Fama and Macbeth (1973) time-series and cross-sectional regressions generally lead to the same conclusions. To avoid the effect of outliers, we winsorise the top and bottom one per cent of observations in each year.

Table 1 reports descriptive statistics for earnings and their major components pre- and post-FRS 3.[9] For both sub-periods, mean and median earnings measures including earnings before exceptional and extraordinary items (*EARN*1), earnings after exceptional items (*EARN*2) and earnings after exceptional and extraordinary items (*EARN*3) were significantly smaller than mean and median cash flow (*CFO*). Earnings and total accruals were negatively skewed. Among the accruals components, non-working capital accruals (*NWACC*) had greater negative mean, median and skewness values. Both exceptional items and extraordinary items had negative means but zero medians and were negatively skewed, with exceptionals skewed more post-FRS 3. Mean depreciation and write-offs of tangible fixed assets (*WOT*) and mean amortisation and write-offs of intangible assets (*WOIT*) were negative and both variables were negatively skewed, with *WOIT* skewed more pre-FRS 3. These analyses indicate that non-working capital accruals or one-off items tended to be associated with bad news. Abnormal accruals (*DACC*) are, on average, zero.

Over our sample period UK firms experienced declining profitability measured by earnings and cash flow. Means, medians and variances of earnings and cash flow differed significantly between pre- and post-FRS 3. Reported earnings exhibited greater variability and negative skewness post-FRS 3. These descriptive results imply that earnings conservatism increased from pre- to post-FRS 3. Mean values of discretionary and non-working capital accruals declined significantly or became less negative from pre- to post-FRS 3. In addition, there was a significant decrease in the variance of discretionary accruals. Exceptional items (*EXC*) were significantly more negative and displayed higher variability post- than pre-FRS 3, consistent with Athanasakou *et al.* (2007). Extraordinary items (*EXT*) had a negative mean before FRS 3 and were, on average, zero after FRS 3. As expected, extraordinary items effectively disappeared post-FRS 3. These findings suggest that exceptional and extraordinary items were generally negative and likely to reflect earnings conservatism. Depreciation and fixed asset write-offs (*WOT*) had significantly less negative mean and median values, significantly less variability and higher negative skewness post-FRS 3. Mean intangible write-offs (*WOIT*) were significantly more negative and volatile post- than pre-FRS 3. This was the result of firms capitalising and amortising goodwill following FRS 10 (ASB 1997). UK firms generally wrote off goodwill against reserves before FRS 10.[10]

6. Empirical results

Table 2 reports findings on earnings conservatism for the three different earnings measures pre- and post-FRS 3. The bad news coefficients of earnings after exceptionals and earnings after exceptional and extraordinary items are higher than for earnings before exceptionals and extraordinary items in both sub-periods. This indicates that UK firms tended to recognise bad news through exceptional and extraordinary items. If FRS 3 reduced earnings management, the increase in earnings conservatism pre- to post-FRS 3 should be greater for earnings before extraordinary items. We find a significant difference in the incremental bad news coefficient pre- and post-FRS 3 for earnings before exceptional and extraordinary items (0.139 vs. 0.257) and earnings after exceptionals (0.242 vs. 0.425) but not for earnings after exceptional and extraordinary items. The increase in the bad to good news coefficient is greater for earnings before exceptionals and extraordinary items. Overall, the results indicate that the degree of conservatism for earnings before extraordinary items significantly increased post-FRS 3 compared to pre-FRS 3.

Reporting choices via discretionary accruals may have differed pre- and post-FRS 3 (Athanasakou *et al.* 2010). To examine this issue, we investigate the role of different earnings components and, in particular, whether there is any change in timely loss recognition through accruals components from pre- to post-FRS 3. In general, the results in Table 3 on accruals components show that the incremental bad news coefficient (α_3) is positive for all accruals measures, with non-working capital accruals having the highest values in both sub-periods. The insignificant

Table 1. Descriptive statistics, pre- and post-FRS 3.

	Mean			Median		Standard deviation			Skewness	
Variable	Pre-FRS 3	Post-FRS 3	Difference	Pre-FRS 3	Post-FRS 3	Pre-FRS 3	Post-FRS 3	Equality of variance (*F*-value)	Pre-FRS 3	Post-FRS 3
EARN1	0.082	0.034	−0.048***	0.088	0.063	0.133	0.151	1.28***	−2.256	−4.056
EARN2	0.078	0.002	−0.076***	0.091	0.061	0.156	0.256	2.69***	−2.739	−4.337
EARN3	0.067	0.003	−0.064***	0.086	0.061	0.191	0.256	1.80***	−2.844	−4.335
CFO	0.226	0.144	−0.082***	0.180	0.123	0.302	0.212	2.04***	2.282	1.312
TACC	−0.073	−0.072	0.001	−0.035	−0.035	0.264	0.196	1.80***	−2.355	−6.528
DACC	−0.020	−0.005	0.015***	−0.000	−0.001	0.196	0.116	2.85***	−2.150	−0.656
NDACC	−0.053	−0.068	−0.015***	−0.032	−0.034	0.153	0.147	1.08**	−2.749	−9.984
WACC	0.023	0.002	−0.021***	0.020	0.007	0.225	0.140	2.58***	−1.238	−3.883
NWACC	−0.095	−0.074	0.021***	−0.061	−0.046	0.116	0.105	1.23***	−3.772	−7.844
EXC	−0.005	−0.034	−0.029***	0.000	0.000	0.062	0.165	7.06***	−7.592	−6.320
EXT	−0.011	0.000	0.011***	0.000	0.000	0.078	0.000	–	−1.827	–
WOT	−0.093	−0.066	0.027***	−0.060	−0.040	0.114	0.096	1.42***	−3.870	−8.902
WOIT	−0.002	−0.008	−0.006***	0.000	0.000	0.009	0.033	12.91***	−9.721	−9.492
RET	0.148	0.068	−0.080***	0.093	0.000	0.455	0.614	1.82***	1.236	3.076

Notes: The table reports descriptive statistics for the study's main variables in pre- and post- FRS 3. Accounting variables are scaled by beginning share price. The three earnings measures are: earnings before exceptional and extraordinary items (*EARN1*; Datastream item DS182); earnings after exceptional and before extraordinary items (*EARN2*; DS182 + DS194 for the period 1983–1992; DS1087 – DS193 for the period 1993–2002); and earnings after exceptional and extraordinary items (*EARN3*; DS182 + DS193 + DS194 for the period 1983–1992; DS1087 for the period 1993–2002). Earnings components are: total accruals (*TACC*; DS445 + DS448 – DS417 + DS1012– DS136– DS562); working capital accruals (*WACC*, DS445 + DS448 – DS417 + DS1012); non-working capital accruals (*NWACC*; total accruals minus working capital); discretionary accruals (*DACC*) and non-discretionary accruals (*NDACC*), estimated based on Jones' (1991) model; cash flow from operations (*CFO*; DS154 + DS136 – non-cash working capital for 1983–1992; DS1015 for 1993–2002); exceptional items (*EXC*; DS194); extraordinary items (EXT; DS193); depreciation and tangible assets write-offs (*WOT*; DS136); and intangible write-offs (*WOIT*; DS562), available from 1983. RET_{it} is annual return for fiscal year t calculated as $(P_{it} - P_{it-1})/P_{it-1}$, where P is share price. The sample contains 6132 firm-year observations, 3140 in pre-FRS 3 (1983–1992) and 2992 in post-FRS 3 (1993–2002).

*** and ** indicate significance at 1% and 5%, respectively.

Table 2. The asymmetric timeliness of earnings pre- and post-FRS 3.

Dependent variable	Sub-period	α_0	α_1	α_2	α_3	Difference in α_3	Adj. R^2
Earnings before exceptional and extraordinary items (*EARN1*)	Pre-FRS 3	0.084	0.000	0.071	0.139	Post − Pre = 0.118***	0.147
		(12.10)	(0.03)	(6.91)	(4.82)		
	Post-FRS 3	0.073	0.004	0.003	0.257		0.158
		(11.44)	(0.52)	(0.35)	(9.53)		
Earnings after exceptionals (*EARN2*)	Pre-FRS 3	0.087	0.009	0.067	0.242	Post − Pre = 0.183**	0.158
		(9.32)	(0.76)	(5.80)	(3.71)		
	Post-FRS 3	0.053	0.032	0.019	0.425		0.140
		(4.55)	(3.43)	(1.79)	(12.19)		
Earnings after exceptional and extraordinary items (*EARN3*)	Pre-FRS 3	0.077	0.022	0.073	0.305	Post − Pre = 0.119	0.135
		(5.82)	(1.36)	(5.47)	(3.36)		
	Post-FRS 3	0.053	0.032	0.019	0.424		0.140
		(4.55)	(3.43)	(1.78)	(12.16)		

Notes: The table reports results of the regression,

$$\frac{X_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 RET_{it} + \alpha_3 D_{it} RET_{it} + \varepsilon_{it},$$

where X_{it} denotes alternative earnings measures for firm i in year t; P_{it-1} is prior year-end share price; RET_{it} is annual return in fiscal year t, calculated as $(P_{it}-P_{it-1})/P_{it-1}$; and D_{it} is a dummy variable equal to one if RET_{it} is negative (bad news). The three earnings measures are: earnings before exceptional and extraordinary items (Datastream item DS182); earnings after exceptionals (DS182 + DS194 for the period 1983–1992; DS1087 − DS193 for the period 1993–2002); and earnings after exceptional and extraordinary items (DS182 + DS193 + DS194 for the period 1971–1992; DS1087 for the period 1993–2002). The pre-FRS 3 period is from 1983 to 1992 (3140 firm–year observations); the post-FRS 3 period is from 1993 to 2002 (2992 firm–year observations). *t*-statistics in parentheses are based on Huber–White standard errors clustered by firm and year. Difference in α_3 is based on a two-sided test. *** and ** indicate significance at 1% and 5%, respectively.

or negative α_2 coefficients on accruals indicate that unrealised good news was not recognised in earnings through accruals.

The total bad news coefficients ($\alpha_2 + \alpha_3$) of accruals components post-FRS 3 are about half those pre-FRS 3 for total, working capital and discretionary accruals, indicating that earnings conservatism associated with accounting accruals and their components was generally weaker after FRS 3. There is a decline in the magnitude of the incremental bad news coefficient on discretionary accruals (0.125 vs. 0.040). Adjusted *R*-squares for accruals and accruals components are also lower post-FRS 3, except for discretionary accruals. The bad news slope coefficient for cash flow is insignificant pre-FRS 3 but significantly positive post-FRS 3. This supports the findings in Table 1, where cash flow from operations displays significantly lower mean and median values post-FRS 3. Ryan (2006) argues that economic phenomena such as abandonment options and deferred gains for tax purposes can explain findings of earnings conservatism through cash flow.[11] Overall, the findings in Table 3 show that earnings conservatism through discretionary accruals declined post-FRS 3, supporting hypothesis 1 and suggesting that the increase in earnings conservatism post-FRS 3 operated less through discretionary accruals. The evidence implies that FRS 3 facilitated efficient contracting and reduced the scope for timely loss recognition through accounting accruals susceptible to managerial discretion.

Table 4, Panel A reports the results of individual non-working capital items pre- and post-FRS 3. The evidence shows that depreciation and write-off of fixed assets contributed to the timely loss recognition of earnings pre-FRS 3 but its effect declined post-FRS 3. The incremental bad news coefficient (α_3) for intangibles write-offs was significantly positive post-FRS 3

Table 3. The asymmetric timeliness of earnings components, pre- and post-FRS 3.

Dependent variable	Sub-period	α_0	α_1	α_2	α_3	Difference in α_3	Adj. R^2
Total accruals (*TACC*)	Pre-FRS3	−0.040	−0.009	−0.056	0.222	Post − Pre =	0.012
		(−1.97)	(−0.49)	(−1.90)	(3.45)	−0.130*	
	Post-FRS3	−0.065	0.015	−0.007	0.093		0.005
		(−5.95)	(1.26)	(−0.40)	(2.73)		
Working capital accruals (*WACC*)	Pre-FRS3	0.037	−0.000	0.013	0.164	Post − Pre =	0.020
		(2.14)	(−0.02)	(0.52)	(2.82)	−0.103*	
	Post-FRS3	0.005	0.012	0.013	0.061		0.013
		(0.79)	(1.41)	(3.07)	(3.36)		
Non-working capital accruals (*NWACC*)	Pre-FRS3	−0.077	−0.008	−0.066	0.062	Post − Pre =	0.037
		(−7.37)	(−3.35)	(−6.15)	(2.31)	−0.025	
	Post-FRS3	−0.070	0.005	−0.020	0.037		0.008
		(−11.48)	(1.22)	(−1.58)	(2.06)		
Discretionary accruals (*DACC*)	Pre-FRS3	−0.006	0.004	−0.025	0.125	Post − Pre =	0.005
		(−0.69)	(0.22)	(−0.46)	(2.44)	−0.085*	
	Post-FRS3	−0.002	0.006	0.005	0.040		0.006
		(−0.37)	(0.70)	(1.33)	(3.40)		
Non-discretionary accruals (*NDACC*)	Pre-FRS3	−0.035	−0.013	−0.031	0.097	Post − Pre =	0.009
		(−2.44)	(−1.91)	(−1.91)	(3.71)	−0.045	
	Post-FRS3	−0.063	0.009	−0.012	0.052		0.002
		(−6.33)	(1.15)	(−0.72)	(1.85)		
Cash flow from operations (*CFO*)	Pre-FRS3	0.197	0.016	0.170	0.024	Post − Pre=	0.060
		(10.63)	(1.71)	(6.64)	(0.38)	0.217***	
	Post-FRS3	0.182	−0.004	0.029	0.241		0.110
		(21.40)	(−0.39)	(0.96)	(4.93)		

Notes: The table reports results of the regression

$$\frac{X_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 RET_{it} + \alpha_3 D_{it} RET_{it} + \varepsilon_{it},$$

where X_{it} denotes alternative earnings components for firm i in year t; P_{it-1} is prior year-end share price; RET_{it} is annual return for fiscal year t, calculated as $(P_{it} - P_{it-1})/P_{it-1}$; and D_{it} is a dummy variable equal to one if RET_{it} is negative (bad news). Earnings components are: total accruals (DS445 + DS448 − DS417 + DS1012− DS136− DS562); working capital accruals (DS445 + DS448 − DS417 + DS1012); non-working capital accruals (total accruals minus working capital); discretionary and non-discretionary accruals, based on Jones' (1991) model; and cash flow from operations (DS154 + DS136 − non-cash working capital for 1983–1992; DS1015 for 1993–2002). The pre-FRS 3 period is from 1983 to 1992 (3140 firm–year observations); the post-FRS 3 period is from 1993 to 2002 (2992 firm–year observations). t-statistics in parentheses are based on Huber–White standard errors clustered by firm and year. Difference in α_3 is based on a two-sided test. *** and * indicate significance at 1% and 10%, respectively.

(0.031, $t = 4.10$). These findings support the descriptive statistics in Table 1, which show that mean depreciation and write-down of tangibles was less negative and mean intangible write-offs was more negative in the post-FRS 3 period. Lin and Walker (2000) argue that non-operating exceptional items recognised post-FRS 3 were generally those items that firms recognised as extraordinary items pre-FRS 3. The results indicate that the incremental bad news coefficient was significantly positive for extraordinary items pre-FRS 3 (0.052, $t = 3.22$) but fell and became insignificant for non-operating exceptional items post-FRS 3 (0.024, $t = 1.32$). This supports hypothesis 2 that earnings conservatism operated less through non-operating exceptional items post-FRS 3 than through extraordinary items pre-FRS 3. Overall, non-working capital accruals, especially exceptionals and intangible write-offs contributed more to the timely recognition of

Table 4. Results for non-working capital items, pre- and post-FRS 3.

Panel A: Non-working capital items, pre- and post-FRS 3

Dependent variable	Sub-period	α_0	α_2	α_2	α_3	Difference in α_3	Adj. R^2
Depreciation and write-off of fixed assets (*WOT*)	Pre-FRS 3	−0.076	−0.007	−0.065	0.055	Post − Pre = −0.051*	0.038
		(−7.42)	(−2.41)	(−5.84)	(2.10)		
	Post-FRS 3	−0.066	0.003	−0.017	0.005		0.012
		(−11.68)	(0.76)	(−1.18)	(0.24)		
Write-off of intangibles (*WOIT*)	Pre-FRS 3	−0.001	−0.001	−0.001	0.002	Post − Pre = 0.029***	0.004
		(−2.83)	(−1.55)	(−0.99)	(1.13)		
	Post-FRS 3	−0.003	0.001	−0.002	0.031		0.032
		(−2.16)	(0.93)	(−1.33)	(4.10)		
Extraordinary items (*EXT*)	Pre-FRS 3	−0.009	0.007	−0.001	0.052		0.006
		(−1.82)	(1.50)	(−0.15)	(3.22)		
Non-operating exceptional items	Post-FRS 3	−0.013	0.012	0.014	0.024		0.007
		(−3.06)	(3.94)	(3.86)	(1.32)		

Panel B: Non-operating exceptional items, post-FRS 3

Dependent variable	Sub-period	α_0	α_1	α_2	α_3	
Profits or losses on termination of operations	Post-FRS 3	−0.010	0.006	0.007	0.012	0.003
		(−3.00)	(1.61)	(1.81)	(1.06)	
Restructuring costs	Post-FRS 3	−0.001	−0.000	0.000	0.001	0.001
		(−3.00)	(−0.07)	(0.54)	(1.64)	
Profits or losses on sale of fixed assets	Post-FRS 3	0.002	0.000	−0.001	0.003	0.002
		(5.94)	(0.94)	(−1.98)	(5.40)	

The table reports results of the regression

$$\frac{X_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 RET_{it} + \alpha_3 D_{it} RET_{it} + \varepsilon_{it},$$

where X_{it} denotes alternative earnings components for firm i in year t; P_{it-1} is prior year-end share price; RET_{it} is annual return for fiscal year t, calculated as $(P_{it} - P_{it-1})/P_{it-1}$; and D_{it} is a dummy variable equal to one if RET_{it} is negative (bad news). Non-working capital items are: depreciation and write-off of fixed assets (DS136); intangible write-offs (DS562); non-operating exceptionals (DS1083) and extraordinary (DS193) items. Non-operating exceptionals (DS1083) include: profits or losses on terminated operations (DS1079); reorganisation or restructuring charges (DS1980); and profits or losses on sale of fixed assets (DS1081). The pre-FRS 3 period is from 1983 to 1992 (3140 firm–year observations); the post-FRS 3 period is from 1993 to 2002 (2992 firm–year observations). t-statistics in parentheses are based on Huber–White standard errors clustered by firm and year. Difference in α_3 is based on a two-sided test. *** and * indicate significance at 1% and 10%, respectively.

economic losses post-FRS 3. We further investigate which components of non-operating exceptional items, including gains or losses from disposal of fixed assets, restructuring costs and gains or losses from discontinued operations, were associated with earnings conservatism after FRS 3. The findings in Panel B indicate that the incremental bad news slope coefficients for restructuring charges and disposal of fixed assets are significantly positive, supporting the evidence of Athanasakou *et al.* (2007) of a significant increase in negative non-operating exceptional items post-FRS 3.

Overall, our results indicate that, after FRS 3, the asymmetric timeliness of earnings before extraordinary items significantly increased. This was because firms were less inclined to report bad news as extraordinary or non-operating exceptional items post-FRS 3. Our findings also indicate a decrease in earnings conservatism through discretionary accruals resulting from more homogenous and less opportunistic accounting choices by companies post-FRS 3. In addition, non-operating exceptionals post-FRS 3 were less associated with earnings conservatism than were extraordinary items pre-FRS 3, a finding that appears to arise from managers having greater flexibility in classifying exceptional items.

The results reported so far explore the extent to which current good or bad news, proxied by annual return, is contemporaneously reflected in current year earnings and its components. However, there may be situations in which managers deliberately delay the recognition of earnings components so that the market reflects some good or bad news in share price earlier than earnings recognise the news. We therefore test the robustness of our results by adding three-year lagged returns to Equation (1) to capture any delay in recognising good and bad news in earnings in previous years (Pope and Walker 1999). Untabulated results show that intangible asset write-offs and exceptional items are still the dominant components in earnings conservatism after controlling for prior-year news. Among non-operating exceptional items, profits and losses on disposal of fixed assets have the greatest impact on the asymmetric timeliness of earnings. Moreover, there was a decline in the magnitude of the concurrent bad news coefficient from pre- to post-FRS 3 for discretionary accruals. All these findings confirm our main results.

We also run tests using discretionary working capital accruals. Working capital accruals is regressed on change in revenues for each Datastream level-3 industry–year. Untabulated results show that the effect of discretionary working capital accruals on the asymmetric timeliness of earnings declined significantly after FRS 3's introduction (α_3 =0.103 vs. 0.026).[12]

As a further robustness check, we estimate the piecewise linear accruals model of Ball and Shivakumar (2005). As the model is based on accounting fundamentals and does not rely on market measures, it reduces the possibility of our results being driven by anomalous stock market behaviour. Untabulated results show that the asymmetry in the relation between accruals and cash flow was more pronounced for discretionary accruals pre-FRS 3 (0.09, $t = 3.51$) and the asymmetry became insignificant post-FRS 3 (0.017, $t = 0.26$). This evidence supports our inference that earnings conservatism is attributable to discretionary accruals and the effect declined after FRS 3.

7. Summary and conclusion

This study's main purpose is to investigate how earnings components contribute to the asymmetric timeliness of earnings pre- and post-FRS 3. Results show that during the sample period the asymmetric timeliness of earnings through accruals was mainly attributable to discretionary accruals and one-off non-working capital accruals. The introduction of FRS 3 affected the way companies classified bad news as losses and the magnitude of the incremental bad news coefficients for discretionary accruals declined. The findings indicate that FRS 3 not only reduced earnings management but also reduced the asymmetric timeliness of earnings through discretionary accruals. We find that conservatism of earnings before extraordinary items increased significantly pre- to post-FRS 3 and earnings conservatism operated less through non-operating exceptional items as the result of tighter definitions of exceptional and extraordinary items. In contrast to prior studies, we examine how accounting regulation change influenced the asymmetric timeliness of earnings through earnings components. We show that FRS 3 changed the way companies classified bad news through discretionary accruals and extraordinary or non-operating exceptional items by offering greater classificatory choices over exceptional items.

Our empirical results on earnings components complement the earnings management literature, especially studies on the causes and effects of discretionary items, such as asset

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write-downs and restructuring charges (Zucca and Campbell 1992, Francis *et al.* 1996). We find that earnings components associated with earnings management are also those that are more related to earnings conservatism. Earnings conservatism is closely related to earnings components that are discretionary and FRS 3 reduced earnings conservatism through these items. Supporting the view of Athanasakou *et al.* (2010) and Chan *et al.* (2009), our study shows that FRS 3 was an effective standard in constraining managerial discretion through accruals. Although prescribing classification methods and key performance items in financial statements may reduce certain elements of flexibility, FRS 3 offered management more cost-effective means of signalling information, which improved the financial reporting environment in the UK, as evidenced by the finding of an increase in the degree of earnings conservatism.

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The authors would like to thank Martin Walker, Edward Lee, the editor, Pauline Weetman, and, in particular, two anonymous reviewers for their valuable comments.

Notes

1. UK listed firms reported under FRS 3 from 1993 until the adoption of International Financial Reporting Standards in 2005.
2. Misclassifying exceptional as extraordinary items was believed to have been a predominant practice before FRS 3, when EPS calculations excluded extraordinary items (Beattie *et al.* 1994, Guntert 1995).
3. Statement of Standard Accounting Practice No. 3 (SSAP3; ASC 1972) required firms to report basic EPS on ordinary income after exceptionals and taxation. SSAP 6 (ASC 1986) provided a flexible definition of extraordinary items. FRS 3 amended SSAP 3 on EPS and replaced SSAP 6 by eliminating discretion in accounting for extraordinary items and prior-year adjustments through reserves.
4. Appendix 1 summarises the structure of the profit and loss account before and after FRS 3.
5. Dechow and Ge (2006) show that low accruals firms with special items have lower earnings persistence and higher future stock returns and that investors' overemphasis on the implication of accruals for future earnings is mainly driven by low accruals firms reporting special items, implying that the market misunderstands the transitory nature of special items.
6. We acknowledge, however, that our findings may be driven by improvements in corporate governance during our sample period and we leave this for future research.
7. Basu (1997) reports results using prior fiscal year-end price with different measures of return, including a return window of [−9, +3], fiscal year-end returns and market-adjusted returns, with similar results. In this study, we use fiscal year-end returns.
8. Following prior research, we require a minimum of six observations for each cross-sectional industry regression.
9. To assess differences in our main variables of interest pre- and post-FRS 3, we employ a Kolmogorov–Smirnov two-sample test, which is a non-parametric test that is sensitive to any differences in statistical moments between sample distributions. Untabulated results show that there were significant differences in the distributions of all the variables in Table 1 pre- and post-FRS 3.
10. The accounting treatment of goodwill was debated over several years in the UK before the adoption of IFRS. FRS 10 required companies to amortise goodwill over its useful life. Under IFRS, UK listed companies implement impairment tests on an annual basis instead of amortising goodwill. It is likely that goodwill impairment is more sensitive to good and bad news than is goodwill amortisation.
11. Managers may exercise an abandonment option and liquidate loss-making operations, making losses more transitory than profits. This may affect cash flow and explain the asymmetric timeliness of cash flow from operations. In addition, high-performing firms may defer gains to reduce current year tax payments, while low-performing firms may realise losses quickly for tax purposes. This may also induce asymmetric timeliness in cash flow. The reason for the association between FRS 3 and the cash flow component of earnings remains an area for further research.
12. As a further robustness check, we also estimate normal and abnormal accruals based on a version of Jones' (1991) model augmented to account for the role of accruals in the asymmetrically timely recognition of gains and losses (Ball and Shivakumar 2006). This check supports our conclusions.

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Appendix 1. A comparison of the profit and loss account pre- and post-FRS 3

Pre-FRS 3	Post-FRS 3
Total turnover (revenue)	Total turnover (revenue) from continuing operations
Less: total operating costs and expenses	Less: total operating costs and expenses from continuing operations
Operating profit[a]	**(1) Operating profit[a] from continuing operations**
	Total turnover (revenue) from acquired operations
	Less: total operating costs and expenses from acquired operations
	(2) Operating profit from acquired operations
	Total turnover (revenue) from discontinued operations
	Less: total operating costs and expenses from discontinued operations
	(3) Operating profit from discontinued operations
	Operating exceptional items[b] are included in (1), (2) or (3)
	Total operating profit = (1) + (2) + (3)
Exceptional items	Non-operating exceptional items[c]
Taxation	Taxation
Extraordinary items	Extraordinary items[d]
Profit	Profit
EPS: *after* exceptional but *before* extraordinary items	EPS: *after* exceptional and extraordinary items Alternative EPSs[e] (at company's discretion)

Notes: [a] Before FRS 3, most UK firms did not report operating profit. Operating profit was normally shown as an aggregate amount if firms chose to report it. FRS 3 referred to the term operating profit but did not define it. To highlight important components of financial performance, FRS 3 required companies to separately disclose operating profit from continuing operations, acquisitions and discontinued operations, using a multi-column format.

[b] Exceptional items are 'material items which derive from events or transactions that fall within the ordinary activities of the reporting entity and which individually or, if of a similar type, in aggregate, need to be disclosed by virtue of their size or incidence if the financial statements are to give a true and fair view' (FRS 3, §5). FRS 3 sub-divided exceptional items into operating and non-operating exceptional items. Operating exceptional items were reported above operating profit and non-operating exceptional items were reported below operating profit.

[c] Non-operating exceptional items include (FRS 3, §20):

'(i) Profits or losses on the sale or termination of an operation;

(ii) Costs of a fundamental reorganization or restructuring having a material effect on the nature and focus of the reporting entity's operations; and

(iii) Profits or losses on the disposal of fixed assets.'

[d] FRS 3 defined extraordinary items as 'material items possessing a high degree of abnormality which arise from events or transactions that fall outside the ordinary activities of the reporting entity and which are not expected to recur. They do not include exceptional items nor do they include prior period items merely because they relate to a prior period' (FRS 3, §6). Based on the definition of ordinary activities in FRS 3, it was almost impossible for a company to identify any events or transactions that are not part of a company's ordinary activities. Therefore, FRS 3 adopted a much narrower definition of extraordinary items than before and implicitly outlawed extraordinary items. Special items previously classified as extraordinary items were categorised as non-operating exceptional items.

[e] FRS 3 allowed firms to report alternative earnings per share provided (FRS 3, §25):

'(i) the assumptions on which they were based were explicitly disclosed;

(ii) the reasons for reporting an alternative EPS were explained; and

(iii) it was presented consistently over time.'

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Book Review

Creative Accounting, Fraud and International Accounting Scandals, edited by Michael Jones, Chichester, Wiley, 2011, xvi and 550 pp., £50, ISBN 978-0-470-05765-0

First a clarification: the title is potentially misleading. It is not referring to 'fraud' in the general sense (as in the general offence of fraud under the Fraud Act 2006) or to 'international accounting' (phew!). Instead, it refers to the manipulation of accounting information, which may be either 'creative' (legal, in the sense of within the rules, but, nevertheless, deliberately misleading) or 'fraudulent' (unlawful and perhaps unnecessarily crude to the purist) and is a survey and analysis of accounting scandals (frauds which involve misleading accounting information) both across countries and time.

The use of accounting information as a means to mislead is an interesting one, far more stimulating to some of us than the presentation of a 'true and fair view' of economic transactions. It presents two groups of intellect pitted against one another: one attempting to mislead, the other attempting to 'read between the lines' and abstract the truth. As a consequence, it is ever-changing and developing. What may have been considered innocuous or even 'good accounting' at one point in time may later be found to be exploited, exposed and, if enough pressure placed on regulators, outlawed. The 'creative accountants' then have to move on and look for opportunities elsewhere. The effect is that, what is acceptable at one point in time may not be the next. For example, secret reserves were allowed until the 1950s in the UK, even regarded as good and desirable, as they were super-conservative. Now, of course, they are considered to be misleading.

It is difficult to generalise much further than this. The history of creative and fraudulent accounting is essentially unique to each country not just because of cultural differences but the regulatory and capital market contexts may be quite different. Of course, personal motives and general economic influences may be similar. For instance, different types of fraud are likely to occur at different stages in the trade cycle. During a boom 'income smoothing' may occur; at its peak and during the start of the subsequent recession, overstatements of income and net worth are likely; and later, when the company is expected to do badly, 'big-bath' accounting, to help the apparent turnaround. (What remarkably polite terms for lying!)

It should not be thought that creative and fraudulent accounting is totally bad. The accountancy profession received some good publicity from it as a result of Enron *et al.* For the first time in many years, there was an increase in the popularity of accounting degree courses. The corporate scandals made it appear to be an exciting and glamorous occupation and an easy way to make money. Through Sarbanes-Oxley, the accounting scandals (and that's what they were) of the early 2000's in the US also created a lot of extra business for those with whom the American public had lost faith. If the Big Four weren't already a cosy monopoly, they certainly were afterwards.

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The circumstances in which financial information will be used to mislead are many – in precisely the same number as those in which they are used to inform and form the basis of decisions: for instance, the avoidance and evasion of tax, stretching from cash payments by one man businesses to transfer pricing by multinational corporations, the misleading of regulators, and influencing the negotiation of contracts and prices etc. The emphasis here is very much on the manipulation of accounting information for investors and it is in this context that Michael Jones and his colleagues present their analysis. In order to understand the phenomenon, it is necessary to understand to some extent the technicalities of how it is done. As with many things, 'the devil is in the detail'. This is particularly so with creative and fraudulent accounting, and Jones and company provide the necessary detail by a careful selection of instructive cases. They also make clear the fraudsters' objectives, the regulatory framework and provide the necessary historical context as to how the current 'state of the art' has derived and, because of this, why it may be different across countries. Jones has written the first section: setting the scene, the basics, motivation, the theoretical context etc. This is quite introductory, fine as a student text. For the second section, he has brought together experts to provide descriptions and analyses of accounting scandals in the following countries: Australia, China, Germany, Greece, India, Italy, Japan, the Netherlands, Spain, Sweden, the UK and the USA. These are effectively research reviews which require a more advanced understanding of some the accounting techniques that are covered in the first section. Nevertheless, they provide valuable insights into the practices in those countries.

Jones has put together what will be regarded as the authority for years to come. Great effort has been placed on making the book as comprehensive as possible and it is admiringly organised. Whilst cross-sectionally it is particularly authoritative, it is, and can only be, sketchy across time and industry examples (e.g. Hollywood accounting) are generally omitted. Already, it is over 500 pages! Nevertheless, Jones does leave some unanswered questions, not least why auditors find it so difficult to be independent. Why did Arthur Andersen collapse over the Enron scandal? It was the largest accounting firm in the world attracting some of the ablest intellects. Certainly, once its clients' stock prices started falling because it was their auditor (the equivalent to a run on a bank) it would have been difficult to recover. But why? Was it known to be corrupt? We will not always agree with him, either. For example, he cites as one of the ways to reduce the potentiality for creative accounting and fraud is to raise accountants' awareness of the ethical issues involved by including it in the professional exams. I doubt it. I do not see how accountants can devise schemes to deliberately mislead without realizing what they are doing. I am reminded of Michael Lewis's surprise at the reaction to his book (Lewis 1989) on the shenanigans on Wall Street by many of his younger readers. It was not indignation and disgust at what went on there as he expected but requests from them for more information as to how to do it! I hope this will not be the reaction to Michael Jones's excellent book.

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Paul Barnes
Dept of Accounting and Corporate Governance
Macquarie University
Australia
Email: paul.a.barnes@btinternet.com
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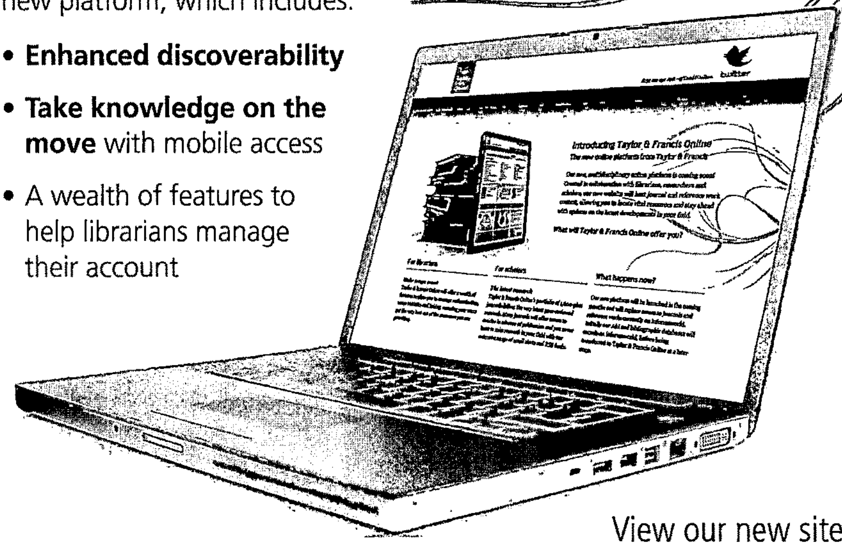
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IFRS, 2010. *IFRS 9, Financial Instruments* (as amended at October 2010). IFRS Foundation.

Jorissen, A. and Otley, D., 2010. The management of accounting numbers: case study from the 'crash' of an airline. *Accounting and Business Research,* 25 (3), 208–218.

Watts, R.L. and Zimmerman, J.L., 1986. *Positive Accounting Theory.* Englewood Cliffs, NJ: Prentice Hall.

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A conceptual framework of impression management: new insights from psychology, sociology and critical perspectives

DORIS M. MERKL-DAVIES[a]* and NIAMH M. BRENNAN[b]

[a]*Bangor Business School, Bangor University, Bangor, Gwynedd LL57 2DG, UK;* [b]*Quinn School of Business, University College Dublin, Ireland*

In this paper we develop a conceptual framework, based on the concepts of rationality and motivation, which uses theories and empirical research from psychology/behavioural finance, sociology and critical accounting to systematise, advance and challenge research on impression management. The paper focuses on research that departs from economic concepts of impression management as opportunistic managerial discretionary disclosure behaviour resulting in reporting bias or 'cheap talk'. Using alternative rationality assumptions, such as bounded rationality, irrationality, substantive rationality and the notion of rationality as a social construct, we conceptualise impression management in alternative ways as (1) self-serving bias, (2) symbolic management and (3) accounting rhetoric. This contributes to an enhanced understanding of impression management in a corporate reporting context.

Keywords: discretionary narrative disclosures; impression management; rationality

1. Introduction

This paper identifies and challenges assumptions on the rationality and motivation for managerial impression management and organisational audiences' responses to it, in order to disrupt the reproduction and continuation of the line of reasoning inherent in the predominant economics-based perspective on impression in a corporate reporting context. The concept of impression management originates in social psychology and is concerned with 'studying how individuals present themselves to others to be perceived favourably by others' (Hooghiemstra 2000, p. 60). Using a dramaturgical metaphor, Goffman (1959) explains impression management as the performance of self *vis-à-vis* an audience. Accounting research applies the concept of impression management in a corporate reporting context to explain discretionary narrative disclosures. Management is assumed to strategically 'select… the information [in corporate narrative documents] to display and present… that information in a manner that is intended to distort readers' perceptions of corporate achievements' (Godfrey *et al.* 2003, p. 96).

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*Corresponding author. Email: abs213@bangor.ac.uk

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The predominant perspective on impression management in a corporate reporting context is informed by economics-based theories, particularly agency theory (Merkl-Davies and Brennan 2007). Agency theory focuses on the relationship between managers and investors, which is characterised by contractual obligations and utility maximisation. Both managers and shareholders are regarded as rational, self-interested decision-makers. This means that decision-making is assumed to correspond to mathematical models; motivation is perceived in strictly utilitarian terms. Corporate reporting and investment decisions are taken on the basis of cost–benefit calculations and involve responding to inputs from the external environment. Since managers operate 'in an environment in which their remuneration and wealth is linked to the financial performance of the companies that employ them, management has economic incentives to disclose messages that convey good performance more clearly than those conveying bad performance' (Rutherford 2003, p. 189). Agency theory provides a narrow view of impression management, as it focuses solely on the relationship between managers and investors, focuses on reporting bias with respect to the financial performance of the firm, and conceptualises impression management as the strategic use of discretionary narrative disclosures. The role of corporate reporting in mediating the relationship between management and stakeholders and biased reporting of social and environmental performance are ignored. The relationship between managers and investors is regarded solely in terms of market exchange (Mouck 1995).

In this paper, we put forward four explanations for discretionary narrative disclosures; the first (1) is based on economic perspective, discretionary narrative disclosures are regarded as opportunistic impression management. Managers are assumed to manipulate the presentation and disclosure of information in corporate narrative documents resulting in reporting bias in order to mislead investors about organisational outcomes. Investors are assumed to be unable to assess the reporting bias in the short term. Three alternative explanations of discretionary narrative disclosures are (2) incremental information, (3) hubris or (4) retrospective sense-making (see Figure 1 for an overview of the four alternative explanations of discretionary narrative disclosures). The incremental information explanation is based on an assumption of investor rationality and semi-strong market efficiency. The efficient market hypothesis states that all market participants have rational expectations about future returns, which implies that, on average, the market is able to assess reporting bias (Hand 1990). This assumes that biased reporting (including impression management) would lead to higher cost of capital and reduced share price performance. As managers' compensation is linked to share price performance, managers have no economic incentives to engage in impression management. Advocates of the incremental information explanation deny the existence of impression management (Baginski *et al.* 2000, 2004). Discretionary disclosure strategies, such as the disclosure of *pro-forma* earnings or the adoption of a positive tone in corporate narrative documents, are thus interpreted as useful incremental information, rather than impression management.

Biased reporting can also be the result of managerial hubris. The word 'hubris' originates in ancient Greek mythology where it is used to describe the flaws (*hamartia*) of rulers or heroes. It refers to excessive pride in individuals, which manifests itself in a subconscious cognitive bias. Such individuals in positions of power may irrationally take actions or make decisions that prove to be risky or grandiose, but which they believe are within their control. Corporate narratives may exhibit signs of 'narcissistic speak' (Amernic and Craig 2007, p. 27), a key precursor to hubris. Owen and Davidson (2009) develop a set of 14 indicators of hubris. Individuals who exhibit three or more of these are regarded as suffering from hubris syndrome. Whereas impression management constitutes opportunistic managerial behaviour with the purpose of manipulating organisational audiences' perceptions of the firm and its performance, hubris constitutes self-deception or egocentric bias. Egocentric bias is 'a dispositional tendency to think of oneself in a favourable light' (Barrick and Mount 1996, p. 262) and arises from the desire to

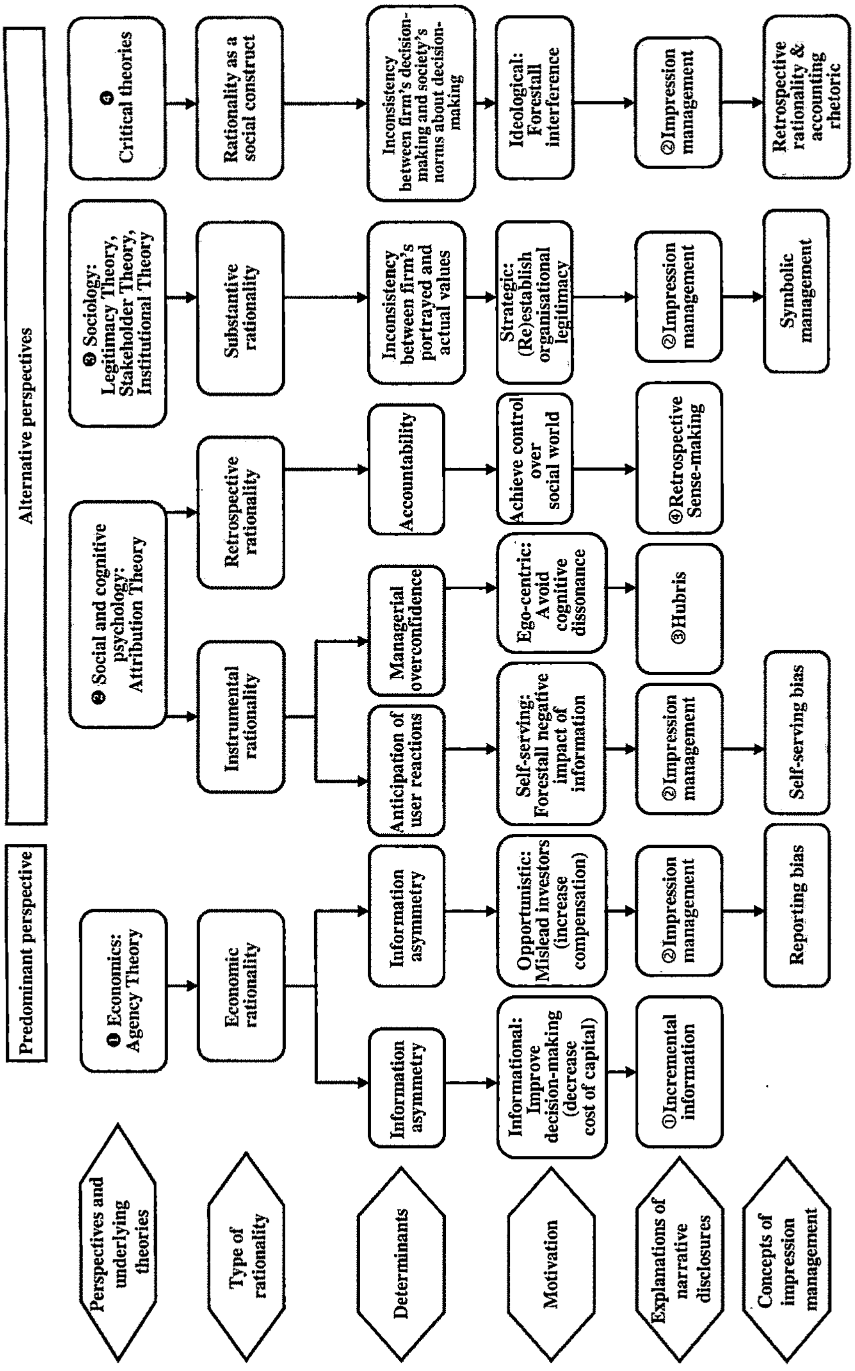
Predominant perspective
Alternative perspectives
Perspectives and underlying theories
Type of rationality
Determinants
Motivation
Explanations of narrative disclosures
Concepts of impression management
❶ Economics: Agency Theory
❷ Social and cognitive psychology: Attribution Theory
❸ Sociology: Legitimacy Theory, Stakeholder Theory, Institutional Theory
❹ Critical theories
Economic rationality
Instrumental rationality
Retrospective rationality
Substantive rationality
Rationality as a social construct
Information asymmetry
Information asymmetry
Anticipation of user reactions
Managerial overconfidence
Accountability
Inconsistency between firm's portrayed and actual values
Inconsistency between firm's decision-making and society's norms about decision-making
Informational: Improve decision-making (decrease cost of capital)
Opportunistic: Mislead investors (increase compensation)
Self-serving: Forestall negative impact of information
Ego-centric: Avoid cognitive dissonance
Achieve control over social world
Strategic: (Re)establish organisational legitimacy
Ideological: Forestall interference
①Incremental information
②Impression management
②Impression management
③Hubris
④Retrospective Sense-making
②Impression management
②Impression management
Reporting bias
Self-serving bias
Symbolic management
Retrospective rationality & accounting rhetoric

Figure 1. Contrasting predominant and alternative perspectives on managerial impression management.
Key: Shading represents impression management, the primary focus of this paper

protect one's self-esteem. This results in managers being biased towards their own performance. Finally, in an accountability context, particularly in the annual report, discretionary narrative disclosures may also be the result of managerial retrospective sense-making. This entails managers providing an account of organisational actions and events by retrospectively assigning causes to them (Aerts 2005).

The objective of the paper is to identify, classify and challenge assumptions regarding the rationality and motivation of managers and organisational audiences. For this purpose, we provide a conceptual framework of impression management in a corporate reporting context. Conceptual frameworks define the main ideas in an area of study and the network of relationships between them (Callahan 2010). Focusing on two key concepts, namely rationality and motivation, we relate relevant theories and empirical research in order to systematise, advance and challenge research on impression management. The literature is either silent, or in some cases confused, about the often implicit theoretical underpinnings and assumptions underlying the research. In particular, assumptions regarding the rationality of managers and organisational audiences, managerial motivation to engage in impression management, reasons for susceptibility to impression management and manifestations of impression management in corporate narrative documents are not spelled out. We develop a taxonomy based on four perspectives, namely: (1) the economic, (2) the psychological/behavioural, (3) the sociological, and (4) the critical, which provide alternative ways of conceptualising impression management in a corporate reporting context (see Figures 1 and 2). The alternative perspectives put forward in the paper are not necessarily competing explanations. Rather, they represent different ways of seeing the same phenomenon.

The paper makes the following five contributions to the literature. First, the range of assumptions underlying prior research is made explicit in section 2 of the paper and is analysed by reference to preparers and users of corporate narrative reports in Figures 1 and 2. Second, the inconsistencies in some of these assumptions are also identified in section 2. Third, a taxonomy is put forward in sections 3 and 4 that is split into a preparer and a user perspective. Fourth, by making the implicit assumptions of prior research explicit, we contribute to an enhanced understanding of impression management in a corporate reporting context. As discussed in section 5, this can be used in future research to make predictions and interpret results (Koonce and Mercer 2005). Finally, by identifying and challenging the assumptions underlying the predominant economics-based perspective, which entails 'taking something that is commonly seen as ... natural and turning it into something problematic' (Sandberg and Alvesson 2011, p. 32), researchers can generate more informed and novel research questions such as those set out in section 5.

Section 2 discusses the assumptions regarding the rationality of managers and organisational audiences and their impact on explanations of discretionary corporate narrative disclosures. Further, the motivation for engaging in and being susceptible to impression management and their impact on the way impression management in corporate narrative documents is conceptualised is discussed. The taxonomy of prior impression management research is set out in section 3 (preparer perspective) and section 4 (user perspective). The paper concludes in sections 5 and 6 by considering opportunities for future research based on the insights generated from this analysis.

2. Theoretical assumptions of prior research

This section contrasts the concept of economic rationality that underlies economics-based impression management research with alternative views of the decision-making of managers and organisational audiences by discussing insights from academic disciplines concerned with 'the study of men as they live and move and think in the ordinary business of life' (Marshall 1962; quoted in Maital 2004, p. 1), particularly cognitive and social psychology, behavioural economics/finance, sociology and critical perspectives.

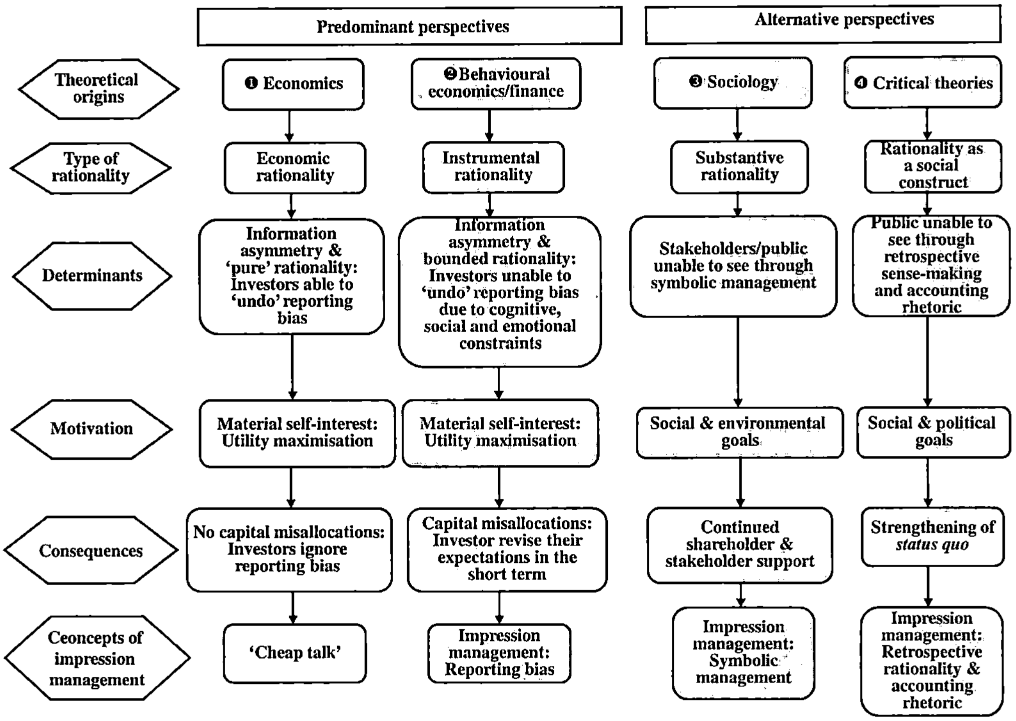
Predominant perspectives
Alternative perspectives
Theoretical origins
❶ Economics
❷ Behavioural economics/finance
❸ Sociology
❹ Critical theories
Type of rationality
Economic rationality
Instrumental rationality
Substantive rationality
Rationality as a social construct
Determinants
Information asymmetry & 'pure' rationality: Investors able to 'undo' reporting bias
Information asymmetry & bounded rationality: Investors unable to 'undo' reporting bias due to cognitive, social and emotional constraints
Stakeholders/public unable to see through symbolic management
Public unable to see through retrospective sense-making and accounting rhetoric
Motivation
Material self-interest: Utility maximisation
Material self-interest: Utility maximisation
Social & environmental goals
Social & political goals
Consequences
No capital misallocations: Investors ignore reporting bias
Capital misallocations: Investor revise their expectations in the short term
Continued shareholder & stakeholder support
Strengthening of *status quo*
Ceoncepts of impression management
'Cheap talk'
Impression management: Reporting bias
Impression management: Symbolic management
Impression management: Retrospective rationality & accounting rhetoric

Figure 2. Contrasting predominant and alternative perspectives on responses to impression management. Key: Shading represents impression management, the primary focus of this paper

2.1 *Rationality*

Economic rationality originates in rational choice theory and expected utility theory. Rational choice theory assumes that all choices are made intentionally and strictly opportunistically, taking account of the expected consequences of each choice (Zarri 2009, p. 4). Expected utility theory assumes that economic actors are highly rational utility maximisers who compute the likely effect of any action on their total wealth and choose accordingly. Economic rationality thus entails making choices that maximise satisfaction, given preferences (Zarri 2010, p. 562).

Economic rationality is what Simon (2000, p. 26) refers to as '"perfect" rationality' and Mumby and Putnam (1992, p. 469) refer to as '*pure* rationality'. It is prospective in the sense that it involves prospectively generating options. It is economic in the sense that the goals of economic actors are material gain. Economic rationality thus involves prospectively selecting the best possible alternative for maximising utility. The preferences of economic agents are regarded as well-defined, stable and self-centred. All actions are driven by the desire to maximise objective utility functions. When making decisions, economic agents use all the information available (Zarri 2009, p. 1). However, the concept of economic rationality is not an adequate description of the behaviour of managers and investors in relation to the provision and dissemination of information in corporate narrative documents. It is abstracted from the real world, which is characterised by

> uncertainty and imperfect knowledge; ambiguous and heterogeneous expectations, abilities, and preferences on the part of both management and all the groups which interact with the firm; competing and conflicting demands upon the firm; and dynamic and obscure relationships between strategies and outcomes (Hines 1989, p. 65).

Decision-making in the real world is thus influenced by both internal and external factors, such as memory and time constraints, beliefs about oneself and others, and social rules and norms. Psychology research shows that managers and investors may suffer from cognitive and social biases and limitations that affect their decision making. Decision-making in real-life situations is characterised by bounded, rather than pure rationality. Bounded rationality (Simon 1972, 2000) takes into account that economic actors make decisions based on incomplete information, by exploring a limited number of alternatives, and by attaching only approximate values on outcomes (Mumby and Putnam 1992, p. 469). Decision-making in the real world is not determined by 'some consistent overall goal and the properties of the external world, [but rather] by the "inner environment" of people's minds, both their memory contents and their processes' (Simon 2000, p. 25). This results in satisfactory, rather than optimal outcomes. Bounded rationality thus constitutes a modified form of 'pure' or economic rationality based on satisficing, rather than optimising (Mumby and Putnam 1992). Bounded rationality explains why investors are prone to cognitive and social biases and thus are susceptible to impression management. It explains why managers may assess their own abilities in a biased manner manifesting itself in hubris – 'exaggerated pride or self-confidence' (Hayward and Hambrick 1997, p. 106).

Both economic rationality and bounded rationality regard decision-making as a cognitive activity that excludes affective components. Research in behavioural finance and psychology suggests that emotional factors play a significant role in decision making. For example, decision outcomes may be enhanced by drawing on emotional resources, such as 'gut feeling'. By contrast, feelings such as anxiety and stress may negatively affect decision outcomes. In real-life situations, decision-making is likely to be a holistic process that combines cognitive and emotional factors (see, for example, Daniel *et al.* 2002).[1]

Both economic rationality and bounded rationality are types of instrumental rationality or rationality of means, which involves 'applying appropriate reason to choose the best possible means to attain one's ends' (Tomer 2008, p. 1704). In this context, decisions not based on the best possible means to achieve given ends are considered irrational. Decision making always takes place in a social context and is thus influenced by social norms and rules. This requires a shift from instrumental rationality to substantive rationality, which is concerned with ideals, goals and ends that are pursued for their own sake, such as equality, justice, freedom and respect for the environment (Weber 1968). Substantive rationality is a rationality of ends, which involves applying appropriate reason to achieve these ends (Bolan 1999, p. 71). In the context of corporate narrative reporting, substantive rationality addresses mainly social and environmental issues, such as fair trade, equality in the workplace and pollution. Firms are assumed to engage in impression management during incidents that violate social norms and rules, such as accidents (e.g. Hooghiemstra 2000), product safety and health incidents (Elsbach 1994) and corporate scandals (Breton and Cote 2006, Linsley and Kajüter 2008). In addition, critical researchers regard the notion of rationality as socially constructed (Hines 1989, Lodh and Gaffikin 1997). When making decisions, managers give the impression of rationality in order to be seen to conforming to the rules and norms of society and to forestall the interference of external agencies in the operation of the organisation (Hines 1989). This may entail the use of accounting logic (Broadbent 1998) to persuade organisational audiences of the validity and necessity of potentially controversial actions and decisions, such as privatisation (Craig and Amernic 2004b, 2006, 2008).

2.2 *Motivation*

Explanations of the behaviour of managers and organisational audiences depend on the way in which the relationship between the organisation and its environment is conceptualised.[2] Both managers' motives to engage in impression management and investors' motives to act on the information provided can be regarded as independent of or dependent on institutional and social context. Impression management and responses to it can thus be regarded as determined by economic (e.g. utility maximisation) or psychological (e.g. the desire to maximise rewards and minimise sanctions, peer pressure) factors or external constraints, such as social norms and rules (e.g. social legitimacy) or belief systems (e.g. capitalism).

The concept of economic rationality that underlies the majority of impression management research assumes that managers are driven to provide corporate narrative disclosures and to engage in impression management by utility maximisation, i.e. increased compensation in the form of salary and bonuses. A similar assumption is made in relation to investors' motives to act on the information provided, being driven by expectations of future cash flows. Economic agents may engage in rational behaviour, in the sense that they choose the best possible means to achieve their ends, but the ends are not necessarily 'what economists had supposed' (Camerer *et al.* 2003, p. 1216; quoted in Zarri 2009, p. 2). By contrast research in social psychology indicates that impression management may be motivated by the social 'presence' of others whose behaviour management is trying to anticipate (Allport 1954, p. 5). Managers may be prompted to engage in impression management anticipating that shareholders and stakeholders may otherwise respond in undesired ways, for example in the form of unfavourable analyst reports, credit ratings or news reports (Prakash and Rappaport 1977) or in the form of withdrawing community support from the firm. Impression management thus serves to counteract such possible negative consequences by controlling the perceptions of organisational audiences either by biasing the presentation or disclosure of information before it is released (reporting bias) or by biasing the descriptions of causality of organisational actions and events (self-serving bias).

Alternatively, managers may be prompted to engage in impression management in order to respond to the concerns of various stakeholder groups (stakeholder theory) or to conform to social rules and norms (legitimacy theory) (Ng and Tseng 2008). Managers may adopt strategies to make their organisational processes or institutionalised practices *appear* to conform to social norms and rules (symbolic management) (Boland and Pondy 1983, p. 223, Ashforth and Gibbs 1990). This is particularly prevalent with respect to social and environmental reporting, where managers may use rhetoric to persuade organisational audiences of the environmental credentials of the organisation (Livesey 2002, Alexander 2009). In this case, impression management is regarded as addressing the substantive rationality concerns of external parties. Managers may engage in impression management as a means of legitimising actions and in order to justify decisions (Hooghiemstra 2000, Aerts and Cormier 2009), to deflect criticism (Prasad and Mir 2002) or to forestall interference by external parties such as trade unions, government agencies and environmental groups (Hines 1989).

In the same vein, investor behaviour may be determined by social context and is thus driven by the behaviour of others, manifesting itself in peer pressure and need for group acceptance. Investment decisions can be regarded as influenced by consensus judgements and by herd behaviour. As investors operate in a social context, their decisions may be influenced by social norms and rules. This means that they may be guided by substantive rationality in the sense that they use appropriate reason to pursue ends for their own sake, such as investing in companies addressing social and environmental concerns (Nicholls and Paton 2010).

2.3 *Concepts of impression management*

Assumptions of rationality and motivation impact on the way impression management is conceptualised. Economic rationality assumes that impression management is regarded as the result of rational purpose-driven behaviour of managers who aim to maximise their utility. It entails managers introducing reporting bias into corporate narrative documents by manipulating the presentation and disclosure of information. By contrast, if impression management is regarded as prompted by the (imagined) presence of shareholders and stakeholders who judge managerial performance, it is conceptualised as self-serving bias executed by attributing positive organisational outcomes to internal factors and negative organisational outcomes to external circumstances (Aerts 1994, 2001; Clatworthy and Jones 2003).

Alternatively, if impression management is regarded as addressing the substantive rationality concerns of organisational audiences, it is conceptualised as symbolic management. Ashforth and Gibbs (1990) differentiate between substantive and symbolic management. Substantive management entails a real change in organisational processes or institutionalised practices, including corporate reporting. This includes normative, coercive or mimetic isomorphism and involves, for example, increasing the quantity and quality of environmental information provided as the result of stakeholder demand, increasing environmental awareness in society or environmental reporting practices by other firms. By contrast, symbolic management entails adopting strategies that make the organisation *appear* to respond to stakeholder concerns or to be congruent with society's norms and expectations. Symbolic management strategies include: (1) espousing socially acceptable goals, (2) redefining means as ends, and (3) ceremonial conformity (i.e. adopting specific practices considered consistent with rational management, even though they do not improve organisational practices). Firms facing a major legitimacy threat engage in symbolic management by separating the negative event (e.g. fraud, scandal, product safety issue) from the organisation as a whole by normalising accounts (e.g. excuse, apology, justification) and strategic restructuring (e.g. executive replacement, establishment of monitors or watchdogs). Finally, if rationality is regarded as a social construct which lends legitimacy to decisions and actions, then impression management entails conveying an image of organisational rationality by means of retrospectively assigning causes to events or by means of using accounting concepts or numbers to frame managerial decisions or organisational outcomes (Aerts 2005).

2.4 *Development of taxonomy*

We develop a taxonomy based on four disciplinary perspectives to explain managerial impression management (Figure 1) and the responses of organisational audiences to impression management (Figure 2); namely: (1) the economic, 2) the psychological/behavioural, (3) the sociological, and (4) the critical. These perspectives are based on different assumptions regarding the type of rationality underlying the behaviour of managers and organisational audiences and the motivation for providing discretionary corporate narrative disclosures. They result in conceptualising discretionary narrative disclosures in corporate narrative documents, including impression management, in different ways.

As set out in the introduction, there are four explanations for discretionary corporate narrative disclosures: (1) incremental information, (2) impression management, (3) hubris, and (4) retrospective sense-making. One strand of research denies the existence of impression management and regards discretionary narrative disclosures as incremental information provided to aid investor decision making. If both managers and investors are driven by economic rationality, managers have no motivation to engage in earnings management (and, by extension, impression management), as investors are able to 'undo' (Healy and Wahlen 1999, p. 369) reporting bias. Rather, managers are assumed to engage in unbiased reporting as this enhances managerial reputation and compensation (Baginski *et al.* 2000).[3] Alternatively, if managers are assumed to be driven by economic rationality and investors by bounded rationality, discretionary narrative disclosures constitute impression management. In this scenario, self-interested managers are assumed to exploit information asymmetries by releasing biased information. They may then benefit from increased compensation, via share options (Adelberg 1979, Rutherford 2003, Courtis 2004a). Cognitive constraints render investors unable to undo reporting bias. As a result, they revise their expectations regarding future cash flows, resulting in short-term

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capital misallocations. Finally, if managers are assumed to be driven by bounded rationality, which biases them towards their own abilities and performance, discretionary narrative disclosures are regarded as hubris.

Following an economics-based perspective, managerial performance attributions in corporate narrative documents are assumed to constitute incremental information. Managers have strong incentives to engage in unbiased reporting, as it enhances their reputation and compensation (Baginski *et al.* 2000), and investors weigh disclosures by the credibility of their sources (Kothari *et al.* 2009). For example, the purpose of performance attributions in management forecasts is to hasten the investor expectation adjustment process. By contrast, Staw *et al.* (1983) and Lee *et al.* (2004) assume that rational utility-maximising managers use self-serving performance attributions in corporate narratives in order to manipulate investor perceptions of the financial performance of the firm. In a corporate reporting context, the focus is on organisational outcomes which may either be attributed to internal factors (i.e. ability, knowledge) or to external circumstances (i.e. macro-economic factors, competition). Attributions are assumed to be biased if positive organisational outcomes are attributed to internal circumstances and negative organisational outcomes to external circumstances. Investors are assumed to be susceptible to impression management and thus exhibit bounded rather than economic rationality.

Psychological explanations of discretionary corporate narrative disclosures are based on attribution theory (Heider 1958, Jones and Davis 1965, Kelley 1967). Attribution theory is concerned with people's explanations of events. Biased performance attributions are regarded as motivated either by socio-psychological or cognitive-psychological factors. The first interprets biased performance attributions as impression management arising from the anticipation of potential negative consequences of information releases. This drives managers to selectively manipulate the descriptions of causality of performance attributions resulting in self-serving bias. The second regards biased performance attributions as egocentric bias or hubris arising from the cognitive dissonance between self-image and the evidence of performance. It reflects a genuine but biased self-assessment arising from an unconscious desire to protect one's self-image. Egocentric bias is the result of managerial overconfidence or optimism, rather than a deliberate attempt on the part of management to present organisational performance in the best possible light (Frink and Ferris 1998).

Alternatively, attributions may serve an explanatory, rather than a self-serving, function. As a result of people's desire to achieve some control over the social world, they explain events by means of cause–effect relationships (Forsyth 1980). In a corporate reporting context, this is referred to as retrospective sense-making (Aerts 2005). Performance attributions in corporate reports may be used: (1) to proactively shape organisational audiences' perceptions of organisational outcomes and events (impression management); (2) to protect, maintain or further beliefs about the self or the organisation (hubris); or (3) to retrospectively provide an account of events (retrospective sense-making). This entails the use of retrospective, rather than prospective, rationality. Instrumental rationality is prospective in the sense that it entails prospectively selecting relevant causal factors and desired outcomes based on a comprehensive understanding of the situation (Boland and Pondy 1983). By contrast, retrospective rationality entails the ex-post rationalisation of decisions in order to give the impression of rational decision making (Aerts 2005). As the psychological perspective regards market participants as characterised by bounded rationality, investors are assumed to be susceptible to impression management.

Sociological explanations of discretionary corporate narrative disclosures are based on legitimacy theory, stakeholder theory and institutional theory, and regard managerial disclosure behaviour as responding to stakeholder concerns and as a means of demonstrating organisational legitimacy. Whereas economic and psychological concepts of impression management regard the concerns of organisational audiences with corporate narrative reports as driven by instrumental rationality, sociological interpretations see them as motivated by substantive rationality. Impression management arises in situations where the norms and values of the firm are inconsistent with those of society (Luft Mobus 2005, p. 495). This causes managers to engage in symbolic management (Ashforth and Gibbs 1990) to (re)establish social legitimacy. As the sociological perspective is concerned with the role of corporate narrative reports in demonstrating the organisation's congruence with social norms and values, it makes no assumptions regarding the instrumental rationality of organisational audiences and thus their susceptibility to impression management.

Critical perspectives on discretionary corporate narrative disclosures regard the notion of rationality as socially constructed in the sense that rationality 'does not intrinsically exist in a decision or situation, but is socially conferred upon it' (Hines 1989, p. 66). In this respect rationality may be viewed as providing sets of rules for meaningful action. Rationality is a normative construct of acceptable behaviour in organisations (Mumby and Putnam 1992). When making decisions, managers have to be seen to be acting rationally. In this context, impression management entails presenting an image of the organisation as a rational entity, often by means of rationalising decisions in order to gain or maintain social legitimacy. This involves presenting organisational outcomes and events in corporate narrative documents as resulting from intentional, reasoned and goal-directed behaviour (Mumby and Putnam 1992).

All four perspectives are based on different concepts of impression management. The economics-based perspective views impression management as inconsistencies between reported and actual organisational outcomes and thus conceptualises it as reporting bias. The psychology-based perspective views impression management as inconsistencies between reported and actual performance attributions and regards it as self-serving bias. Systems-orientated theories regard impression management as inconsistencies between portrayed and actual values and conceptualise it as symbolic management. Critical perspectives regard impression management as inconsistencies between portrayed and actual organisational decision making. Impression management is thus conceptualised as retrospective rationality and accounting rhetoric.

3. Theoretical perspectives on managerial impression management

In this section we consider the four perspectives on managerial impression management summarised in Figure 1. The assumptions of the predominant economic perspective on managerial impression management with respect to decision making and motivation are contrasted with those of three alternative perspectives, namely, cognitive and social psychology, sociology and critical perspectives. This enriches our understanding of impression management in a corporate reporting context by providing us with alternative explanations of managerial impression management.

Figure 1 illustrates that altering assumptions of managerial rationality from 'pure' rationality to bounded rationality results in biased discretionary narrative disclosures to be conceptualised as hubris, rather than impression management. By contrast, altering assumptions of managerial motivation from opportunistic (material self-interest in the form of increased compensation) to informational (decreasing the cost of capital by means of improved decision making) results in an alternative explanation of discretionary narrative disclosures as useful incremental information, rather than impression management. Switching from instrumental rationality to substantive rationality or rationality as a social construct leads to alternative concepts of impression management as symbolic management or retrospective rationality and accounting rhetoric.

3.1 *Economic perspective*

The economic perspective regards impression management as a strand of the financial disclosure literature (Godfrey *et al.* 2003). Impression management is conceptualised as biased discretionary narrative disclosures. Managers and investors are assumed to strategically compete for wealth and thus use the information in corporate narrative documents as a factor of production with respect to that wealth (Arrington and Puxty 1991, p. 34). Impression management thus entails managers taking advantage of information asymmetries by means of manipulating the presentation and disclosure of information in order to maximise their personal wealth (Adelberg 1979, Rutherford 2003, Courtis 2004a). Corporate narrative documents serve as impression management vehicles to present a self-interested view of corporate performance (Bettman and Weitz 1983, pp. 166–167, Staw *et al.* 1983, p. 584, Abrahamson and Park 1994, p. 1302, Mather *et al.* 2000, p. 68, Clatworthy and Jones 2006, p. 493). As negative organisational outcomes may give rise to conflicts of interest between managers and shareholders, managers are assumed to 'distort readers' perceptions of corporate achievements' (Godfrey *et al.* 2003, p. 96) by means of obfuscating failures and emphasising successes (Adelberg 1979, p. 187).

3.2 *Social psychology perspective*

The social psychology concept of impression management originates in Goffman's (1959) dramaturgical metaphor of individuals as actors on a stage performing for an audience. Impression management is neither the result of rational decision making, which takes the expected consequences of each choice into account, nor entirely motivated by material gain. By contrast, it is regarded as embedded in and dependent on management's relationship with organisational audiences. As it arises from 'the actual, imagined and implied presence' (Allport 1954, p. 5) of organisational audiences to whom management is accountable, it is inherently social in character. Schlenker *et al.* (1994, p. 634) define accountability as 'the condition of being answerable to audiences for performing up to certain standards, thereby fulfilling responsibilities, duties, expectations, and other charges'. On the one hand, accountability entails the obligation of one party to provide explanations and justifications for its conduct to another party. On the other hand, it involves the first party's behaviour being subject to the scrutiny, judgement and sanctioning of the second party. Accountability involves three components that affect judgement and decision making in different ways; namely: (1) the inquiry component, (2) the accounting component, and (3) the verdict component (Schlenker 1997). The inquiry component entails anticipating or submitting to an inquiry by an audience who evaluates one's actions and decisions in relation to specific prescriptions. The accounting component involves presenting one's version of events. This gives the individual the opportunity to describe, document, interpret and explain relevant information in order to construct a personal account of events and to provide reasons for their occurrence. The verdict component entails the audience delivering a verdict. This comprises both a judgement of the individual and the application of either social and material rewards or sanctions. The experience or anticipation of an evaluative appraisal is crucial to the concept of accountability.

Managers are accountable to organisational audiences, including shareholders and arguably stakeholders, for their decisions and actions. Corporate reports, particularly the annual report, serve as an accountability mechanism that addresses the concerns of external parties (Stanton and Stanton 2002). In a corporate reporting context characterised by conditions of accountability, impression management arises from the inquiry component of the corporate reporting process. Management engages in impression management in anticipation of an evaluation of its actions and decisions primarily by shareholders which serves to counteract undesirable consequences. If corporate narrative documents are regarded as a description of the decision behaviour of management and thus reflect managerial performance (Prakash and Rappaport 1977, p. 35), then managers may be prompted to engage in impression management to counteract undesirable consequences of information releases in the form of unfavourable analyst reports and credit ratings, negative share price movements and loss of stakeholder support (Merkl-Davies *et al.* 2011).

Impression management takes place in the accounting component of the accountability process, where it manifests itself in strategies adopted by management to present a version of events aimed at winning social and material rewards and avoiding sanctions. This entails the use of self-serving bias (Aerts 1994, 2001, Clatworthy and Jones 2003). Research suggests that, in an interactive context, people's attribution of actions and events is biased in the sense that they take credit for success and deny responsibility for failure (Knee and Zuckerman 1996).

In contrast, Aerts (2005) argues that the accountability context of corporate annual reporting prompts managers to engage in retrospective sense-making. This concept originates in Weick's (1995) work on organisational sense-making and refers to the interpretation of events that have already occurred. The analysis by Merkl-Davies *et al.* (2011) of UK chairmen's statements focuses on the linguistic manifestations of the psychological processes underlying the inquiry component of the corporate reporting process, which is characterised by the managerial anticipation of the feedback effects of information. They find that managers do not use chairmen's statements for impression management purposes, but rather to engage in sense-making by means of retrospective framing of organisational outcomes.

Alternatively, managerial information processing may be characterised by bounded rationality. When accounting for organisational outcomes, managers may provide biased performance explanations in order to enhance their own self-esteem by means of attributing positive organisational outcomes to their own efforts and negative organisational outcomes to external factors beyond their control (egocentric bias). This egocentric bias serves the purpose of protecting, maintaining or extending their beliefs about themselves or about their environment 'which would be rejected if attributions followed from observations in a strictly rational manner' (Forsyth 1980, p. 185). In the accounting literature, this egocentric bias is referred to as overconfidence bias or hubris. Hubris manifests itself in managerial optimism about future outcomes, overconfidence about forecasting ability and assigning too much weight to confirming, rather than disconfirming evidence. Hubris is a concept that has been predominantly applied in explaining managerial dispositions and motives for mergers. Liu and Taffler (2008) investigate managerial optimism in the CEO discourse of Securities and Exchange Commission 8k filings of firms engaged in mergers or takeovers as a proxy for managerial overconfidence. Brennan and Conroy (2011) take concepts of hubris from the clinical psychology literature and apply them to narratives in CEO statements in annual reports of a single bank for evidence of narcissism (a key precursor of hubris) and hubris.

3.3 *Sociology perspective*

The sociology perspective regards corporate narrative reporting as determined by structural constraints exerted either by various stakeholder groups or by society at large. Decision-making is regarded as being affected by 'the dictates of consensually developed systems of norms and values, internalised through socialisation' (Granovetter 1985, p. 483). Decision-making is driven by substantive, rather than instrumental, rationality. Stakeholder theory regards impression management as an attempt on the part of management to react to the concerns of various stakeholder groups or to respond to public pressure and media attention (Hooghiemstra 2000). Legitimacy theory regards impression management as arising from inconsistencies between the firm's and society's norms and values. It constitutes an attempt on the part of management to gain or restore organisational legitimacy by seemingly aligning the firm's norms and values with those of society, particularly in situations where firms face legitimacy threats, such as corporate scandals, product safety issues and environmental disasters.

As described earlier, firms engage in symbolic management to give the impression that their activities are congruent with society's norms and values. Symbolic management strategies include: (1) espousing socially acceptable goals, (2) redefining means as ends, (3) ceremonial conformity (i.e. adopting specific practices considered consistent with rational management, even though they do not improve organisational practices), and (4) separating negative events or organisational outcomes from the organisation as a whole. When organisations are involved in major legitimacy-threatening events, such as an environmental disaster, a fraud or a product recall, they aim to portray the incident as an isolated event (Suchman 1995). For this purpose, they provide normalising accounts and engage in strategic restructuring. Normalising accounts are verbal remedial strategies, such as justifications, excuses and apologies, whose purpose is to repair organisational legitimacy and reputation. Strategic restructuring entails the organisation 'selectively confess[ing] that limited aspects of its operations were flawed' (Suchman 1995, p. 598) and then decisively and visibly remedying the flawed operations. This is achieved by introducing small and narrowly tailored changes, such as creating monitors and watchdogs, and symbolically distancing the organisation from negative influences by disassociation, for example by executive replacement. Espousing socially acceptable goals involves, for example, claiming customer-focus or equal opportunities employer status, when, in effect, the opposite is the case. Redefining involves recasting the meaning of its ends or means, for example by justifying the closure of employee pension schemes on the basis of the introduction of a new accounting standard. Finally, an example of ceremonial conformity is public sector organisations producing extensive annual reports in an attempt to emulate reporting practices in the private sector or organisational restructuring to distance the organisation from a negative event, such a financial fraud (Linsley and Kajüter 2008).

Impression management in a corporate reporting context is regarded as an attempt to affect the public's perceptions of the company (Hooghiemstra 2000, Aerts and Cormier 2009), either by proactively shaping stakeholders' impressions of the organisation (i.e. organisational change in the form of structural organisation or privatisation; e.g. Arndt and Bigelow 2000) or by reactively responding to stakeholder concerns, increased scrutiny by the media or public pressure in the wake of a corporate scandal or environmental disaster (e.g. Elsbach 1994, Hooghiemstra 2000, Breton and Cote 2006, Lightstone and Driscoll 2008, Linsley and Kajüter 2008, O'Keefe and Conway 2008).

3.4 *Critical perspective*

The critical perspective questions assumptions of instrumental rationality that underly mainstream impression management research. Corporate reporting decisions are assumed not to be primarily driven by self-interested utility maximisation, but are ideological in the sense that corporate narrative documents 'privilege … language and thought rooted in managerial capitalism' (Craig and Amernic 2004a, p. 814), while marginalising the perspective of stakeholders and the public.

If rationality is a social construct, managers may use corporate narrative documents to give the impression of rational decision-making. Organisational legitimacy is achieved by conforming to social ideologies of rational decision making. In this scenario, impression management arises from the desire to be seen to conform to the rules and norms of society and to forestall the interference of external agencies in the operation of the organisation (Hines 1989). Similarly, Mumby and Putnam (1992) argue that rationality is a normative construct of acceptable behaviour in organisations. In order to gain or maintain social legitimacy, managers have to present organisational outcomes and events in corporate narrative documents as resulting from intentional, reasoned and goal-directed behaviour. This involves constructing a retrospective account of organisational outcomes and events and providing reasons for their occurrence (Aerts 2005). Retrospective rationality thus restores social legitimacy of organisational agents as rational decision-makers. In a longitudinal study of Amcor's annual reports, White and Hanson (2000, p. 307) note that: 'the more uncertain the general environment became, the more ... Amcor intensified its self-presentation as rational.'

Management may use rationality to justify actions and decisions. For this purpose, management may use accounting numbers and concepts to frame managerial decisions or organisational outcomes. As a result of its emphasis on objectivity, measurability and lack of ambiguity, the use of 'accounting rhetoric' (for example, Hanson and White 2003, Craig and Amernic 2004a) or 'accounting logic' (Broadbent 1998) lends validity, legitimacy and credibility to managerial decisions and actions. Organisational legitimacy is achieved by conforming to social ideologies of rational decision making. Impression management thus entails the use of rationality to obscure 'the "real" decision processes which are political' (Jones 1992, p. 235). For example, in their analysis of the discourse of privatisation in the annual letters to shareholders of Canadian National Railway, Craig and Amernic (2008, p. 1087) demonstrate how accounting performance measures and accounting language 'have been invoked to show that the vision of the promoters of the privatisation has been achieved, and that the decision to privatise has been a sagacious one'.

Corporate narrative documents are used by managers to establish and maintain unequal power relationships in society in the way that they represent things and position people. Language is regarded as a medium through which prevailing power relations are articulated. Managers are viewed as powerful organisational actors who use corporate narrative documents to provide a hegemonic account of organisational outcomes, often by means of using dominant discourses. For example, in their analysis of the 2001 Southwest Airlines' Letter to Shareholders, Amernic and Craig (2004) highlight how management appropriates symbolic representations to show their company in a positive light. They demonstrate the use of language in corporate narrative documents to be political.

4. Theoretical perspectives on responses to impression management

A taxonomy capturing the user perspective which mirrors that of the preparer perspective is developed in Figure 2. This taxonomy consists of four perspectives: the two predominant perspectives derived from (1) economics and (2) behavioural finance/economics; and two alternative perspectives grounded in (3) sociology and (4) critical perspectives.

Figure 2 illustrates that the assumption of 'pure' investor rationality results in reporting bias being conceptualised as 'cheap talk' that is ignored by investors.[4] Under assumptions of bounded investor rationality, impression management results in short-term revisions of expectations about future cash flows. As shown in Figure 1, switching from instrumental rationality to substantive rationality and rationality as a social construct leads to alternative concepts of impression management as either symbolic management or retrospective rationality and accounting rhetoric. This also goes hand-in-hand with widening the concept of organisational audiences to include various stakeholder groups and the general public.

4.1 *Economics perspective*

Mainstream finance theories assume that investors behave rationally and that share prices incorporate information about the firm in a timely and unbiased manner. Under agency theory, investors can take for granted that managers act in their self-interest, rationally responding to incentives shaped by compensation contracts, the market for corporate control and other corporate governance mechanisms. The rational actor model assumes that people unemotionally maximise expected utility functions (Huang 2003, p. 2). In semi-strong capital markets, rational investors are assumed to regard biased information disclosures as 'cheap talk' (Benabou and Laroque 1992) and ignore them, as such disclosures are costless to managers and difficult to verify. Demers and Vega (2010) find that investors disregard managerial optimism in earnings announcements, unless it is verified by outside sources, such as financial analysts and the media, and is accompanied by hard information.

4.2 *Behavioural finance/economics perspective*

Investors are only susceptible to impression management if their decision making is considered to be characterised by bounded rationality. This renders investors unable to assess reporting bias, as a result of a variety of cognitive, social, and emotional biases. The concept of bounded rationality originates in cognitive psychology and is used in behavioural finance/economics research to study decision making under risk and uncertainty (Kahneman and Tversky 1979). Bounded rationality results in investors being unable to assess information in an unbiased and timely manner as a result of time constraints and cognitive and affective biases, such as hindsight bias, the primacy/recency effects (individuals more influenced by the first/last information item; Einhorn and Hogarth 1981) and the bandwagon effect (see Olsen 1998 for a full list of biases impacting on investor decision making). The incomplete revelation hypothesis views time constraints on the part of investors as a factor in investor susceptibility to impression management (Bloomfield 2002). Information that is more costly to extract from publicly available data is less completely reflected in market prices. The easier information is to extract, the more it is impounded into share prices.

Bowen *et al.* (2005) use the incomplete revelation hypothesis to explain investor reactions to impression management in the form of emphasising income-increasing *pro-forma* earnings numbers. They find that firms with low value relevance of earnings and greater media exposure place less emphasis on GAAP earnings and greater relative emphasis on *pro-forma* earnings (i.e. they visually direct readers' attention to the earnings number that shows financial performance in the best possible light). Li (2008) also invokes the incomplete revelation hypothesis to explain that managers may choose to manipulate syntactic features to render the annual reports of poorly-performing firms difficult to read in order to increase the time and effort needed for investors to extract information. The belief-adjustment model (Einhorn and Hogarth 1981) suggests that information processing is affected by the ordering of information. Investors may be either biased towards information presented first (primacy effect) or towards information presented last (recency effect). Thus, investors may attribute less weight to bad news and more weight to good news, depending on the order in which such news is presented.

Baird and Zelin (2000) test the belief-adjustment model and find that the ordering of good and bad news can influence investor perceptions. Evidence on how unsophisticated investors cognitively process *pro-forma* earnings information is provided by Fredrickson and Miller (2004). Cognitive processes are divided between information acquisition and information evaluation. They find that investors are subject to unintentional cognitive biases, rather than consciously perceiving information to be informative. These unintentional cognitive biases are attributed to cognitive limitations arising from their lack of expertise and the use of ill-defined valuation models. Krische (2005) also finds unintentional investor evaluation effects arising from memory limitations. Similar to Krische (2005), Elliott (2006) attributes unsophisticated investor responses to the emphasis of *pro-forma* earnings to unintentional cognitive effects. She posits that investors may overweigh a less important cue simply because it is emphasised. Managers exploit this salience effect to influence investor perceptions of organisational outcomes by emphasising the earnings metric that portrays financial performance in a positive light.

The investor decision-making process is driven not only by the quality of securities' underlying technical fundamentals, but also by affective evaluation (MacGregor *et al.* 2000, MacGregor 2002, Pixley 2002, Dreman 2004). MacGregor *et al.* (2000) and MacGregor (2002) find that affective evaluation is based on the image associated with a particular company. In particular, MacGregor (2002) finds image evaluations to be correlated with financial judgements. Firms can exploit this association to their advantage by proactively manipulating their image and thus the perceptions of firm performance and prospects. The emotional impact of presentational effects has been studied in the context of visual information. Courtis (2004b) examines the effect of colour in annual reports and finds that some colours are associated with more (or less) favourable perceptions and investment judgements. However, it may also be present in verbal information, as language is an ideal medium for conveying emotion (MacGregor 2002, p. 20). Thus, readers of corporate narrative documents may be influenced by emotionally charged language, particularly similes, metaphors and other rhetorical devices. Cianci and Kaplan (2010) consider the influence of trust on investors' judgements of management explanations for poor firm performance. They examine the influence of CEO reputation and the plausibility of management explanations, finding that investor judgements are not influenced by CEO reputation.

4.3 *Sociology perspective*

The sociological perspective conceptualises impression management as symbolic management. Management manipulates the audience's perceptions of the congruence of organisational practices with social norms and rules. The focus of analysis is on perceptions of organisational legitimacy. Research investigates the impact of impression management relating to organisations' environmental performance on organisational audiences. Archival research predominates. This entails assessing shareholder perceptions by means of share price reactions and stakeholder perceptions by means of media accounts. Applying institutional theory, Bansal and Clelland (2004) investigate shareholder responses to corporate environmental legitimacy and impression management relating to environmental performance (disclosure of environmental liabilities and expression of environmental commitment). Investors are assumed to assess corporate environmental legitimacy according to the firm's conformity to accepted social norms and rules. They find that firms which adopt institutional norms gain legitimacy, which lowers their unsystematic stock market risk. Berrone *et al.* (2009) investigate organisational audiences' perceptions of corporate environmental legitimacy. They find that symbolic management does not have the same impact on environmental legitimacy compared to substantive management. They conclude that symbolic management is not unimportant in the sense that symbolic and substantive management are complementary, rather than supplementary.

4.4 *Critical perspective*

We are unaware of accounting research exploring whether readers of corporate narrative documents are persuaded by the use of retrospective rationality and accounting rhetoric to give the impression of rational decision making and/or to persuade organisational audiences of the validity and legitimacy of managerial actions and decisions. Research in linguistics suggests that rhetoric constitutes an effective means of giving universal status to particular discourses, for example the discourse of New Public Management, which includes the use of accounting rhetoric to persuade audiences of the advantages of a market orientation in the public sector (Fairclough 2003). If audiences are persuaded by the use of accounting concepts and numbers in corporate narrative documents to justify managerial actions and decisions, this reinforces the *status quo* by promoting ignorance in the sense that 'the company maintain[s] a privileged position regarding information by keeping society unaware of alternative avenues of consumption, or systems of organisation or its present and future performance' (Simpson 2000, p. 245).

5. Implications for future research

This paper commenced with a criticism of the narrow concept of economic rationality that underlies the predominant economics-based approach to impression management research

(Merkl-Davies and Brennan 2007). Research based on economic rationality assumes that the decision making of organisational actors and audiences involves taking the expected consequences of each choice into account and that these decisions are driven by self-interested utility-maximisation. This is reductionist in the sense that managerial corporate reporting decisions and responses to these decisions are regarded as abstracted from real decision making as driven by a narrow view of human behaviour based on prospective rationality, and as motivated solely by material gain.

We introduce alternative concepts of impression management based on theories from psychology/behavioural finance, sociology and critical perspectives, which are based on different assumptions regarding the rationality and motivation of managers and organisational audiences. These inform the way discretionary corporate narrative disclosures are interpreted and the way impression management is conceptualised. By making these underlying assumptions explicit, we contribute to the quality of future research by highlighting the importance of consistency between underlying assumptions, predictions and interpretations of results. Identifying, classifying and challenging assumptions regarding the rationality and motivation of managers and organisational audiences may help researchers to think differently about what is already known (Foucault 1985).

5.1 *Concepts of impression management*

Depending on the disciplinary perspective adopted and the focus of analysis (i.e. management versus organisational audiences), impression management is conceptualised as opportunistic managerial discretionary disclosure behaviour, reporting bias, self-serving bias, symbolic management and cheap talk. Insights from psychology, sociology and critical perspectives show impression management as a multifaceted and complex phenomenon aimed at shaping the perceptions of a wide range of outside parties. Sociological and critical approaches shift the focus of analysis away from specific impression management tactics to broader strategies used to present a particular version of events, such as rhetoric (see, for example, Driscoll and Crombie 2001, Livesey 2002, Craig and Amernic 2004b, 2006, 2008) or symbolic management (see, for example, Linsley and Kajüter 2008). This necessitates a more qualitative, in-depth analysis of corporate narrative documents aimed at uncovering how impressions are constructed.

Relatively little is known about the influence of the content and presentation of corporate narrative documents on organisational audiences. Corporate report readers have been profiled in terms of their sophistication (sophisticated and unsophisticated) and their information acquisition strategies (goal directed/purposeful and incidental/random) (Courtis 2000, pp. 255–258, Courtis and Hassan 2002, pp. 398–399). The former acquire information by seeking answers to preconceived questions and search sections of the annual report for answers to specific questions, while the latter merely browse through the annual report and read bits and pieces as take their fancy. There is little evidence on the information acquisition strategies undertaken by different strata of that audience. The relationship between information inductance, framing and impression management has also not been adequately explored. These questions need to be addressed in future research.

5.2 *New methodological approaches*

The majority of impression management research is archival. Research on the preparer perspective is primarily based on text analysis. The problem with archival research is that the underlying decision processes and motivations have to be inferred. This problem may be overcome in future research by using methods that allow a more direct access to organisation actors' decision making and motivation. The concepts introduced in this study can be used by researchers as a theoretical framework to inform their interactions with organisational actors and audiences in field studies and interviews. There is some research on the drivers of disclosures in the narrative documents of various organisations. Findings suggest that different disclosure positions may co-exist in one firm (Gibbins *et al.* 1990, Adams 1997) and that disclosure positions may differ across different corporate narrative documents (Jetty and Beattie 2009). This means that impression management is part of the disclosures made within one particular narrative document, that different manifestations of impression management may co-exist in one document, and that impression management may be more prevalent in specific types of corporate narrative document.

There is less research on the perception of narrative disclosures by organisational audiences. This is at least partly because of the difficulty of capturing the response of organisational audiences other than shareholders to impression management by conventional archival methods. Research on the user perspective predominantly focuses on shareholder responses to impression management by means of share price reaction studies. Some researchers have used experimental approaches to proxy shareholder reactions (Stanton *et al.* 2004, Barton and Mercer 2005, Krische 2005, Elliott 2006). Bansal and Clelland's (2004) and Breton and Cote's (2006) approach of using media accounts as a proxy for public perception may be a way forward. Solomon *et al.* (2009) interview 20 institutional investors in relation to impression management and private social and environmental reporting. Although their focus is not on social and environmental disclosures in corporate reports, their study nonetheless provides an example of a different approach to studying investor perceptions of impression management in a corporate reporting context. They find evidence of impression management, which is of concern, since the objective of private social and environmental disclosures is to encourage relationship investing by engendering trust, confidence and transparency in the relationship between companies and their core institutional investors. In conclusion, different methodological approaches provide opportunities to address new research questions dealing with preparer and user perspectives.

5.3 *Interaction between managers and organisational audiences*

Prior research conceptualises impression management as a process consisting of two separate stages; namely: (1) managerial impression management, primarily by means of corporate narrative documents, such as annual reports and press releases, and (2) audience responses to impression management. Ginzel *et al.* (2004) argue that impression management constitutes an interactive process between managers and audiences. The social psychology perspective of impression management introduced in section 3.2 shows that impression management can be regarded as being triggered by the anticipation of the reactions of information recipients to managerial disclosures. Ginzel *et al.* (2004, p. 225) argue that this 'process of reciprocal influence' between management and organisational audiences is not necessarily confined to an 'initial attempt... to explain an organisation's actions or performance'. In cases where impression management attempts are not successful in the sense that audiences are not convinced, the impression management process extends to a third stage, during which management and audiences attempt to resolve interpretive conflicts regarding the appropriate interpretation of an event, resulting in possible modifications in interpretations. Driscoll and Crombie (2001) and Beelitz and Merkl-Davies (2011) are rare examples of studies of impression management as an interactive process between two parties. Driscoll and Crombie (2001) analyse a conflict between a large timber firm and a small monastery situated in a forest where the firm is operating. They find that the timber firm uses language and symbolic activity strategically to increase its own legitimacy and decrease the legitimacy of the convent. Beelitz and Merkl-Davies (2011) analyse the discursive negoiation of legitimacy between an energy company and organisational audiences following an incident in a German nuclear power plant. They find that management strategically uses discourse to manufacture organisational audiences' consent.

6. Concluding comments

Impression management is a much richer and more complex phenomenon than suggested by the predominant economics-based perspective. Insights from disciplines conceptualising the relationship between managers and organisational audiences as going beyond market exchange and which either focus on 'real people, real behaviour, or real reason' (Maital 2004, p. 1) relating to corporate narrative reporting or on the ideological motivation and effects of corporate narrative reporting allow us to conceptualise impression management in new ways. For this purpose, we develop a taxonomy that renders rationality assumptions and motivational components in prior research explicit and classifies prior research into four distinct perspectives based on these underlying assumptions. This allows us to advance research by assisting researchers in locating their study within a particular perspective. We also provide guidance on how to achieve consistency between assumptions, predictions and interpretation of results. This results in more informed and novel research questions which are based on the impression management concept adopted, driven by the research methodology applied, and which take the interaction between preparers and users of corporate narrative reports into consideration.

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Notes

1. The dichotomy between cognitive and emotional factors can be traced back to the Cartesian model of the mind. Descartes regarded rationality and emotions to be distinct spheres (Lakoff and Johnson 1999). However, emotions, which are associated with the realm of the body, can influence the mind.
2. The predominant economics-based perspective on impression management is based on a closed-system concept of the organisation as 'separate from its environment and encompassing a set of stable and easily identifiable participants' (Scott and Davis 2007, p. 31). By contrast, the alternative perspectives (particularly the sociological and critical perspectives) introduced in this paper are based on an open-system concept of the organisation as being shaped, supported and infiltrated by its environment (Scott and Davis 2007).
3. Another strand of research does not deny the existence of impression management, but regards reporting bias as 'cheap talk' (Benabou and Laroque 1992) that is ignored by investors (see Figure 2).
4. The reporting bias may either be the result of impression management or managerial hubris.

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The effects of uncertainty on the roles of controllers and budgets: an exploratory study

FRANK G.H. HARTMANN[a] and VICTOR S. MAAS[b]*

[a]*Rotterdam School of Management, Erasmus University, PO Box 1783, 3000 DR, Rotterdam, the Netherlands;* [b]*Erasmus School of Economics, Erasmus University, PO Box 1783, 3000 DR, Rotterdam, the Netherlands*

This paper explores how contextual uncertainty and the use of the budgetary system explain cross-sectional variation in the organisational role of business unit controllers. We argue that there are complementarities between the role of the budgetary control system (i.e. coercive vs. enabling) and the role of the controller (i.e. corporate policeman vs. business partner). Thus, we explore both the direct effect of uncertainty on the role of the controller and the indirect effect through the role of the budgetary control system. Using survey data from 134 business unit controllers, we find that uncertainty provides a partial explanation of the variation in the role of budgetary control systems and in the role of controllers. In particular, our data suggest alignment between the coercive (enabling) use of the budgetary control system and the role of controllers acting as corporate policemen (business partners). These findings add to our understanding of the functioning of business unit controllers within their organisational context.

Keywords: budgeting; controllers; management accounting; uncertainty

1. Introduction

Over the past two decades, the organisational role of the management accountant (or controller[1]) has become a topic of considerable practical and academic interest (Burns and Baldvinsdottir 2005, Maas and Matějka 2009). While there has been a plea for controllers to strengthen their role of 'business partner' and to engage actively in managers' strategic and operational decision-making (Colton 2001, Siegel *et al.* 2003), it has also been emphasised that controllers have an important 'watchdog' function, which requires them to remain 'objective' and 'independent' (Davis *et al.* 2006, Indjejikian and Matějka 2006). Available evidence suggests that the relative emphasis on the business partner and the watchdog roles varies across firms and business

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*Corresponding author. Email: vmaas@ese.eur.nl

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units (BUs) (Indjejikian and Matějka 2006). Not much is known, however, about the factors that cause this variation.

In this paper, we explore how uncertainty impacts the role of BU controllers. Uncertainty has been identified as the underlying factor of many contingency variables affecting the design and use of control systems (Chapman 1997, Hartmann 2000). We investigate the direct effects of uncertainty on the importance of the two possible controller roles, as well as the indirect effects through the role of the budgeting system (cf. Chapman 1998). In line with the recent literature on the limited relevance of traditional views of budgeting (Johnson and Kaplan 1987), we adopt the view that budgetary control systems may play a coercive role and an enabling role in organisations (e.g. Simons 1995, Chapman 1997, Ahrens and Chapman 2004). This view extends the traditional view of budgeting as a mere technical tool to evaluate the outcomes of predefined action plans. It recognises that budgetary control systems may provide value to organisations by facilitating managerial interaction to enhance flexibility and decision quality.

Existing research suggests that, since uncertainty increases the information asymmetry between higher level managers and lower level managers, it will be related to more coercive budgeting procedures (Dunk 1993, Shields and Shields 1998, Fisher *et al.* 2002) and a stronger emphasis on unit controllers' watchdog tasks. However, since uncertainty renders pre-set targets less useful, it might also increase the need for more enabling budget use that allows day-to-day coordination and ad hoc planning (Chapman 1997, Marginson and Ogden 2005) and the need for controllers who are knowledgeable about the business and who proactively facilitate managers' decision-making processes.

In addition to the direct effects of uncertainty on the roles of the controller and the role of the budgetary control system, we also explore the relationship between these two elements of a firm's 'control package' (cf. Otley 1999, Malmi and Brown 2008). We argue that the organisational roles of controllers in BUs in which the budgetary control system is used coercively are different from those in units in which budgeting is primarily used to facilitate decision-making and enable flexibility (cf. Chapman 1998). More specifically, we examine if controllers are expected to focus on their watchdog role in a setting of coercive budget use and on their business partner role in units where budgets are used in an enabling manner.

Our data is collected using a questionnaire survey of 134 BU controllers. We find that uncertainty has an impact on the roles of control systems and controllers in a number of expected and unexpected ways. In particular, we find that the role of the controller is affected by the role of the budgeting system, which suggests that the roles of the budgetary control system and the controller are complementary.

The paper makes four contributions to the literature. First, by providing cross-sectional evidence regarding the antecedents of controllers' role design, this paper contributes to the growing literature on the role of management accountants (e.g. Pierce and O'Dea 2003, Järvenpää 2007, 2009, Maas and Matějka 2009). Second, this paper responds to calls to focus research on the alternative uses of management accounting systems in organisations and related trade-offs in control system design (e.g. Otley 1994, Sprinkle 2003). Third, while there are some qualitative studies that suggest that the role of the control system and the role of the controller are intertwined (e.g. Granlund and Malmi 2002, Granlund and Taipaleenmäki 2005) our study is the first of which we are aware that provides cross-sectional evidence that these two elements are related. Thus, our paper adds significance to Chapman's assertion (1998) that there are complementarities between the roles of accounting and the roles of accountants in organisations. Finally, our study contributes to the contingency literature that deals with the effects of uncertainty on control system design and use. For example, consistent with Hartmann (2005), we show that different types of uncertainty have different effects on how control systems and controllers operate.

The paper proceeds as follows. The next section discusses the existing literature and develops the theoretical model. Section 3 describes the survey that was used to gather the empirical data. Section 4 contains the study's results. Finally, Section 5 discusses the findings and concludes with suggestions for future research.

2. Literature review and hypothesis development

2.1. *Roles of controllers*

The role of the controller in organisations has been the subject of ongoing discussion for more than 50 years (cf. Anderson 1944, Simon *et al.* 1954). It is widely recognised that management accountants in general, and BU controllers in particular, have a wide-ranging set of tasks and responsibilities. For example, Siegel and Sorensen (1999), in their extensive analysis of the US management accounting practice, identify 30 separable work activities while Mouritsen (1996), in his study of Danish management accountants, defines 18 different tasks associated with the controller function. Several authors have tried to capture the diversity of the work of the controller in a taxonomy of controller roles or 'archetypes'. Such classifications have typically been developed in the professional literature (Anderson 1947, Jablonsky *et al.* 1993, Jablonsky and Keating 1998) or from primarily descriptive academic studies (Hopper 1980, Mouritsen 1996, Granlund and Lukka 1998). For example, Hopper (1980) distinguishes two roles of BU controllers: bookkeeper and service aid. The bookkeeper is concerned with the implementation and administration of financial systems to enable superiors to specify and measure the performance of subordinates. The service aid role in contrast, has managers of decentralised operating units as most important clients. In this role, stress is placed on personalised and horizontal communication and analysis of problems at the level of the unit. Jablonsky *et al.* (1993) similarly distinguish between BU controllers' roles of 'corporate policeman' and 'business advocate'. As corporate policemen, controllers are agents of higher level managers and organisational stakeholders. Their main responsibilities are to make sure all decisions made at lower levels of the organisation are in the interest of the firm as a whole (by stressing operating efficiency and conservation of corporate resources) and to ensure compliance with rules and regulations and technical bookkeeping procedures. As business advocates on the other hand, BU controllers are primarily focused on providing assistance to BU managers. They help develop and implement BU strategies and actively participate in running their units' operations (Jablonsky *et al.* 1993). In this study, we refer to the alternative roles of controllers as the 'corporate policeman' role and the 'business partner' role, which are widely accepted labels in the academic and practitioner literature (e.g. Williams 2000, Siegel *et al.* 2003, Järvenpää 2007, 2009).

2.2. *Roles of budgetary control systems*

Budgetary control systems are traditionally portrayed as serving a number of organisational functions, such as planning, coordination, performance evaluation, resource allocation and organisational learning (Covaleski *et al.* 2003, Hansen and Van der Stede 2004). Understanding the organisational role of budgeting has been an issue of academic enquiry for over four decades. Hopwood's study (1972) of the styles of budget system use initiated a research paradigm generally interested in defining the roles that budgets play in various circumstances (Abernethy and Brownell 1999, Hartmann 2000, Bisbe *et al.* 2007). Hopwood initially distinguished between a budget-constrained style of management and a profit-conscious style of management. The budget-constrained style is characterised by an emphasis on budget targets as performance benchmarks and rigid performance evaluations with a narrow focus on meeting these targets.

The profit-conscious style of budgeting, on the other hand, is characterised by a more long-term focus, where meeting budget targets is instrumental and considered one of many aspects of performance that is taken into account in evaluation processes.

Later, Hopwood (1980) and Burchell *et al.* (1980) distinguished between alternative styles of budget use as 'answer machine' use and 'learning machine' use.[2] When uncertainty is low, budgeting acts as an answer machine that streamlines the decision-making process with detailed plans, programmed controls, formulas and rules. In such a setting, budget variances provide a good indication of managerial performance. As uncertainty increases however, the budgeting system becomes a learning machine that helps managers analyse the possible effects of changes in the organisational environment and develop action strategies to respond to emerging opportunities and threats (Burchell *et al.* 1980, Birnberg *et al.* 1983).

The framework of 'levers of control' in Simons (1995) develops the related notions of 'diagnostic' and 'interactive' control system use. A diagnostic use of budgets reflects the top-down monitoring of organisational outcomes vis-à-vis officially developed strategies, and correction of deviations from pre-set performance standards. Interactive budget use is characterised by facilitating debate and dialogue on strategic uncertainties and the development of new strategic initiatives (Simons 1995, Henri 2006).

Most recently, Ahrens and Chapman (2004) introduced to the accounting literature the sociological concepts of coercive and enabling control systems, advocated by Adler and Borys (1996). Coercive systems are designed to make work processes foolproof and to limit the discretion of employees, which ensures that all efforts are directed at achieving corporate objectives. In contrast, enabling systems aim to mobilise local knowledge and experience in support of central objectives and are designed to facilitate employees in dealing more effectively with inevitable contingencies (Ahrens and Chapman 2004). In our paper we rely on this latter framework to address the role of the budget system, because the concepts of enabling and coercive budget use include both the objective of the system and the manner in which managers communicate about budget-related issues (cf. Ahrens and Chapman 2004, p. 278, Wouters and Wilderom 2008, Chapman and Kihn 2009). As such, it is more comprehensive than the frameworks of Hopwood (1972) or Burchell *et al.* (1980),[3] more parsimonious than the framework of Simons (1995) and better grounded in the academic literature than they are.

Arguably, the frameworks of both Simons (1995) and Adler and Borys (1996) aim to be comprehensive. We prefer the Adler and Borys (1996) framework for our analysis for three reasons. First, Adler and Borys (1996) identify a fundamental dichotomy, whereas Simons also recognises boundary systems and belief systems that fall outside our interest in budget systems. Second, Simons' framework (1995) was developed as a managerial, rather than as an analytical framework, whereas the framework of Adler and Borys (1996) was developed to help researchers make sense of organisational practices and is founded on theory and firmly rooted in the academic literature. Finally, the enabling vs. coercive distinction has proved informative in recent empirical management accounting research (e.g. Naranjo-Gil and Hartmann 2006, Free 2007, Wouters and Wilderom 2008, Chapman and Kihn 2009).

2.3. *Uncertainty as a contingency factor*

As Chapman (1997) and Hartmann (2000) argue, the concept of uncertainty is central to contingency theory and, according to Hartmann (2000), uncertainty has often served as the implicit or theoretical factor behind the explicit and operational variables in empirical tests of contingency theory-based models. In this study, we extend this line of reasoning. We acknowledge that both the style of use of the budgeting system and the emphasis placed on alternative controller roles are design choices made by the organisation and that these choices are generally integrated in a broader process of selecting a 'package' of control mechanisms (Otley 1999, Malmi and Brown 2008).[4] Thus, our main purpose is to understand whether, and if so how, uncertainty, as the fundamental contingency factor, influences this selection process and whether organisations treat the role of budgeting and the role of the controller as complementary elements of their control package.

The uncertainty concept that underlies most contingency research originates in the work of Galbraith (1973). Galbraith argued that uncertainty essentially is lack of information and represents a gap between what is known and what needs to be known to perform well (Agbejule 2005). Uncertainty can be a characteristic of the production process itself, but also of the environment in which the production takes place. If the uncertainty originates in the production process itself ('task uncertainty'), it means that it is difficult *ex ante* to specify optimal action strategies, because it is inherent in the task that cause–effect relationships are opaque and subject to change (e.g. Perrow 1967, Hartmann 2005). If the uncertainty originates in the environment, it means that factors outside the organisation, which will have an impact on the organisation's performance, are unpredictable and therefore difficult to anticipate (e.g. Govindarajan 1984, Chong and Chong 1997). For BUs within larger organisations, uncertainty may also stem from the relationships between the unit and other units in the same organisation. Units are often to some extent interdependent, meaning that one unit's optimal action strategies are affected by another unit's performance. Unit managers will therefore experience uncertainty, as they need to coordinate their actions to optimally benefit the firm (e.g. Abernethy *et al.* 2004, Gerdin 2005).

Uncertainty affects both the need for control and the appropriateness of specific control mechanisms (Hartmann 2000). Uncertainty affects the need for control to close the gap between what is known and what needs to be known to perform well. The wider this gap, the more important it is to use instruments that facilitate managers' decision-making processes and align incentives of managers at various hierarchical levels (Jensen and Meckling 1992, Zimmerman 2010). Contingency studies in management accounting have mainly focused on the second issue, namely, how uncertainty affects the appropriateness of specific control package elements such as budgets and 'evaluation styles' (Hartmann 2000). The central tenet of most of these studies is that uncertainty reduces the usefulness of more 'mechanistic' controls (Chenhall 2003) because such controls are based on the assumption that the knowledge gap between what is known and what needs to be known to perform well is small or nonexistent (Birnberg *et al.* 1983, Chapman 1997). None of the studies has addressed the effects of uncertainty on the role of the BU controller. With the exception of Chapman (1998) none has addressed budgeting and controllership simultaneously. Chapman's sociogram analysis (1998, pp. 764–765) revealed that, under increasing levels of uncertainty, the interaction between controllers and other managers increased to compensate for the relative incompleteness of accounting information contained in the budget systems.

2.4. *Research model*

We explore the relationships between uncertainty and the role of the BU controller and the budgeting system following the conceptual model presented in Figure 1. The arrows in this figure represent the hypothesised cause–effect relationships that we investigate. Given the exploratory nature of the study, we explicitly choose to formulate general research hypotheses that predict the existence of relationships between the variables of interest, without specifying *ex ante* how exactly these relationships will look. However, the path model that we test (shown in Figure 2) does contain paths from types of uncertainty (environmental uncertainty and task uncertainty) and dimensions of interdependence (the impact of other departments in the same company and the impact on other departments in the same company), towards two budgetary control system roles (enabling and coercive) and two controller roles (corporate policeman and business

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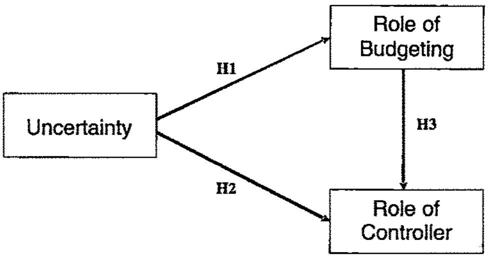

Figure 1. Conceptual research model.

partner). Below, we discuss our hypotheses and the paths examined in the empirical study in more detail and elaborate on the theoretical arguments that are relevant for the cause–effect relationships we are interested in. First, we discuss how uncertainty might play a role in determining the roles of control systems and controllers. Next, we argue how the role of the budgetary control system might affect the role of the controller.

As we argued above, uncertainty affects both the need for control and the appropriateness of specific control mechanisms (Hartmann 2000). First, a higher need for control arises because uncertainty makes it more difficult for unit managers to select optimal action strategies and for corporate managers to evaluate unit managers' performance. In consequence, both controller roles could become more important. Organisations may choose to increase the emphasis on the importance of both roles (cf. Goff 1995) or alternatively may design the controller function in such a way that one of the roles is clearly prominent. The literature is unclear about whether increased importance of the controllers' business partner role will come at the cost of reduced importance of the corporate policeman role (Sathe 1982, Indjejikian and Matějka 2006) or whether the two roles are complementary (Maas and Matějka 2009).

Since under high levels of uncertainty budget variances will not be very informative about managers' effort levels, the use of budgetary control systems in a coercive way is not appropriate

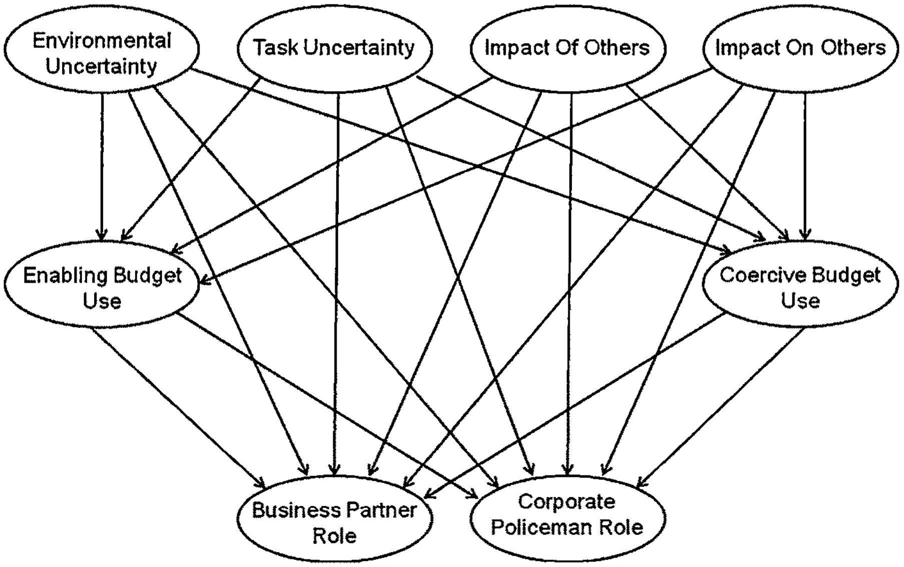

Figure 2. Tested path model.

in such circumstances. As was argued above, this is the central tenet of most of the contingency theory-based research in management accounting, starting with Hopwood (1972). Enabling budget use, on the other hand, will have higher pay-offs in cases of uncertainty, since the potential consequences of various action strategies become ambiguous and organisations continuously need to update their beliefs about, and adapt to, changes in their environment (e.g. Chong and Chong 1997, Chong and Johnson 2007). In addition, interdependent organisational units will need to coordinate their activities and keep up to date with each other's work.

We acknowledge that different types of uncertainty may have different consequences. Hartmann (2005) found that environmental uncertainty and task uncertainty have opposite effects on the perceived appropriateness of evaluating managers based on accounting performance measures. Environmental uncertainty has a positive effect on the perceived appropriateness of accounting measures because it increases the need for mechanisms that allow organisations to respond systematically to changes and the need for buffers against the impact of outside influences on the daily work environment of managers (Hartmann 2005, Marginson and Ogden 2005). Task uncertainty, on the other hand, has a negative effect on the perceived appropriateness of accounting measures because, when the uncertainty is inherent in the task, accounting measures provide little guidance and tend to be incomplete and relatively uninformative indicators of managerial effort and unit performance (Hartmann 2005).[5] Focusing on these different types of uncertainty allows us to explore such differential effects of uncertainty on the role of the budgetary control system and the role of controllers. In sum, we test the following two general hypotheses about the effects of uncertainty:

H1: The level of uncertainty in a business unit is associated with the role of the budgetary control system in that business unit.

H2: The level of uncertainty in a business unit is associated with the role of the business unit controller.

Table 1, panel a, summarises the paths we examine in our empirical study to test hypothesis H1 and hypothesis H2. As is clear from the table, we examine paths from four types of uncertainty (environmental uncertainty, task uncertainty, the impact of other BUs and the impact on other BUs) to two budget roles (enabling budget use and coercive budget use) and to two controller roles (business partner role and corporate policeman role).

We next turn to the relationship between the role of the budgetary control system and the role of the controller. The crucial question about this relationship is whether organisations treat these two elements of the larger control package as complements or substitutes. To the extent that they are complements, we expect enabling budget use to be positively associated with the importance of the controllers' business partner role and coercive budget use to be positively associated with the importance of the corporate policeman role. An enabling use of budgeting systems means that the budgeting process is used to facilitate the decision-making processes of managers and to foster debate and dialogue on strategic uncertainties. Thus, budgeting serves to help managers identify the best responses to changes in the organisational environment and to help them understand how their actions impact unit performance. The budgetary control system is by nature enabling because it translates everyday operational reality into financial figures and vice versa (Burchell *et al.* 1980, Chapman 1997). This allows managers to make better-informed choices and increases the chance that value-maximising actions are implemented and promising new initiatives obtain a foothold (Abernethy and Brownell 1999, Ahrens and Chapman 2004, Bisbe and Otley 2004). In addition, accounting figures provide a common language for managers with different functional backgrounds and from different hierarchical levels. Budgeting thus smoothes and focuses communication processes and enables structured and coordinated responses and learning processes

Table 1. Paths in empirical model.

Panel a: effect of uncertainty on budgetary control system role (Hypothesis 1) and on BU controller role (Hypothesis 2)

From:	To:
Environmental uncertainty	Enabling budget use
	Coercive budget use
	BU controller business partner role
	BU controller corporate policeman role
Task uncertainty	Enabling budget use
	Coercive budget use
	BU controller business partner role
	BU controller corporate policeman role
Interdependence A (impact OF others)	Enabling budget use
	Coercive budget use
	BU controller business partner role
	BU controller corporate policeman role
Interdependence B (impact ON others)	Enabling budget use
	Coercive budget use
	BU controller business partner role
	BU controller corporate policeman role

Panel b: effect of budgetary control system role on BU controller role (Hypothesis 3)

From:	To:
Enabling budget use	BU controller business partner role
	BU controller corporate policeman role
Coercive budget use	BU controller business partner role
	BU controller corporate policeman role

(Marginson and Ogden 2005, Naranjo-Gil and Hartmann 2006). The role of the controller in organisational units where budgeting is used in an enabling way will be of crucial importance because it is the controller who is best qualified to make the actual translation of operational realities into the common language of accounting and of accounting into action plans (Pierce and O'Dea 2003, Byrne and Pierce 2007). Thus, enabling budget use should positively affect the importance attached to tasks associated with controllers' business partner role, as these tasks are aimed at facilitating the decisions of local managers regarding activities that add value directly to the unit. Examples are investment selection, strategy development and product pricing decisions (Hopper 1980, Sathe 1982).

Similarly, coercive budget use means that the budget system is used by higher level managers as a mechanism to ensure that lower level managers implement the planned strategies of corporate headquarters and do not waste organisational resources (Adler and Borys 1996, Ahrens and Chapman 2004). The primary function of accounting data in such a situation is to portray the economic reality of the BU so that targets can be established and performance can be evaluated (Abernethy *et al.* 2004, Ahrens and Chapman 2004). Accordingly, if the role of the budget system and the role of the controller are complements, the prime responsibility of controllers in units where budgeting is used coercively is to provide higher level managers with unbiased and objective data about the actions of local managers and to develop mechanisms that ensure data integrity and the efficient use of resources (Indjejikian and Matějka 2006). Thus, coercive budget use should increase the importance that controllers attach to tasks that have been assigned to them by higher level managers instead of local managers (Maas and Matějka 2009). Such corporate

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policeman tasks include the development of internal controls, critical assessment of unit expenses and monitoring of unit managers (Mouritsen 1996, Jablonsky and Keating 1998).

However, organisations might also use the role of the budgeting system and the role of the controller as substitutes. In particular, if they decide to use their budgeting system in a more enabling way, they might simultaneously decide to put more emphasis on the controller's policing tasks. This can help to ensure that lower level managers do not use their increased discretion and the additional information available in ways that are detrimental to the organisation's performance. In other words, if using the budget in a more enabling way allows managers to better select optimal action strategies from the perspective of the firm, strengthening the controllers' policeman role could be a way to ensure that the budgeting system is actually used by managers for this specific purpose. In a similar vein, some organisations that use their budgeting system coercively might simultaneously allow unit controllers to focus on the tasks associated with their business partner role. Units in such organisations would operate relatively autonomously, but corporate headquarters would tightly control these units, focusing on budget variances, as in the classic management-by-exception case (Brownell 1983). In line with the discussion above, we test the following general hypothesis:

> **H3:** The role of the budgetary control system in a business unit is associated with the role of the business unit controller.

We investigate four paths in our empirical study to test Hypothesis 3. Table 1, panel b, lists these four paths.

Our figures represent models that depict causal directions, even if our main interest lies in establishing paths of association. Indeed, Järvenpää's case study (2009) provides some illustration of the complexities of disentangling potential interrelationships between structure and human behaviour in organisations. However, given our cross-sectional approach, the causal direction of the models reflects the general assumption about the longitudinal stability of the various factors in the model. Luft and Shields (2003, pp. 193–194) distinguish between fast and slow changes to help determine and interpret the direction of causality. We follow their recommendation in the design of our model.

3. Research method

We collected the data for this study using a questionnaire survey of controllers of decentralised units of large and medium-sized firms in the Netherlands. This survey was part of a larger research project that was performed in collaboration with the Dutch professional organisation of controllers and management accountants (CI).[6, 7] The CI provided a database containing the names, addresses, employing organisations and job titles of its members. The choice of administering the research project in collaboration with a professional organisation has its precedents in management accounting research (e.g. Wier *et al.* 2002) and is in line with the recommendations of Dillman (2000), who argues that because individuals are more likely to comply with the requests of familiar and authoritative sources, sponsorship of survey studies can increase the response rate.

The target population for this study consisted of controllers working in the Netherlands for one specific unit of a medium or large company. We determined our survey population by selecting members of the target population from the CI member database. The CI members list contained 5694 names. We first selected those members whose job title contained either the word 'controller' or 'management accountant'. From this set we deleted all members whose job titles clearly indicated they were not working as a controller for one specific BU. Next, we deleted all members in this sample working for a company having less than 250 employees worldwide or working in a not-for-profit company. From the remaining survey population of 1063 members we randomly selected 314 members for participation in this study. Some of these subjects worked for the same company but there were no subjects who appeared to work for the same BU within this company.

All steps in the process of designing and administrating the questionnaire were made in accordance with Dillman's recommendations (2000). First, to gain the interest of potential respondents, the research project was announced in an article in the professional journal that all members of the CI receive automatically on a two-month basis. One month after publication of this article the 314 selected CI members received a package containing the questionnaire, a hand-signed cover letter on CI stationery, a pre-stamped envelope and a high-quality pen with the logo of the CI. Two weeks after the initial mailing, a postcard was sent to all participants, which thanked them for filling in the questionnaire and urged those who had not yet returned it to do so. Two weeks after that, a replacement questionnaire was sent to all subjects who had not responded. About three weeks after this third mailing, we started calling non-responding participants by telephone to learn about the reasons for their non-response and to try to persuade them to complete the questionnaire. Reasons for non-response included lack of time, a lack of interest in the study and concerns about anonymity because of the coding. Some respondents indicated that they were still prepared to fill in the questionnaire, but had lost it or thrown it away. These respondents were sent a second replacement questionnaire.

The survey procedure outlined above resulted in the return of 186 questionnaires (59.2%). However, only 134 of these were considered usable for the present study. Of the omitted 52, there were 49 respondents whose answers revealed with hindsight that they were not a member of the target population. For example, some respondents indicated that they were currently employed as corporate controller or were working as controller for more than one BU.[8] Three questionnaires were removed because they had a substantial amount of missing data.

Table 2 contains demographic data of the respondents in the final sample of 134. The average respondent is 37.5 years old and has worked 5.8 years for their present company, 3.1 years for their present BU and 2.7 years in their present job. Most respondents (80.0%) are male. The

Table 2. Respondent characteristics.

	N	Mean	SD	Min	Median	Max
Individual characteristics						
Age	133	37.48	5.70	28.00	36.00	55.00
Tenure in company	134	5.76	5.58	1.00	4.00	35.00
Tenure in business unit	134	3.13	2.54	0.30	2.50	16.00
Tenure in current job	134	2.66	1.94	0.30	2.00	14.00
Male	133	80%				
Firm and BU characteristics						
Number of BU employees	134	1278	3330	3.00	400	33,000
Number of company employees	134	41,517	67,544	250	16,000	400,000
Publicly listed	134	70%				
Industry						
Agriculture	134	1.5%				
Manufacturing	134	29.1%				
Trade	134	6.7%				
Financial services	134	26.9%				
Other services	134	20.1%				
Other	134	15.7%				

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respondents work for BUs in a wide variety of industries with some concentration in manufacturing (29.1%) and financial services (26.9%). The average BU has 1278 employees (median = 400) and 70.0% of the units belong to a company that is listed on a stock exchange, either in the Netherlands or in another country. The average company has 41,517 employees worldwide (median = 16,000).

To test for non-response bias we split the sample in two groups. The 67 questionnaires that were received back first were labelled 'early respondents' and the other 67 respondents were labelled 'late respondents'. Simple *t*-tests did not reveal any significant differences between early and late respondents for demographics or mean item scores.[9]

3.1. *Uncertainty*

We measure the three types of uncertainty using existing instruments. Environmental uncertainty is measured by using five items from Govindarajan (1984) that ask respondents about the predictability of their BU's clients, competitors, technology, suppliers and government regulations. Task uncertainty is measured with the widely used eight-item instrument of Withey *et al.* (1983) that is based on the technology dimensions task variability and task analysability identified by Perrow (1967). Respondents indicate to what extent they agree with statements such as: 'Basically, unit members perform repetitive duties in doing their jobs.' Finally, interdependence is measured with two items from Keating (1997) which ask respondents to indicate to what extent their unit's actions impact on work carried out in other units of the same company and to what extent the actions of other units in the company impact on the work carried out in their unit. We treat these two forms of interdependence as different variables (impact on others and impact of others, respectively).

3.2. *Enabling and coercive use of MACS*

No measures of enabling and coercive use of budgeting systems existed at the time the questionnaire was designed. Therefore, we developed two instruments using definitions and descriptions of the constructs from the extant literature. The instrument used to measure coercive budget use asked respondents to indicate on a five-point Likert scale to what extent they agreed with the following statements about the budgeting and periodic reporting process for their unit: (1) the budgeting process is used as an instrument to limit managers' decision-making authority; (2) the budgeting process is used to communicate to managers what is, and what is not, allowed; (3) the budgeting process clearly limits managerial freedom of action; and (4) the budgeting process is used to communicate to people in the organisation how they are expected to behave. Enabling budget use was measured with an instrument that asked respondents to indicate on a five-point Likert scale to what extent they agreed with the following four statements about the budgeting process for their unit: (1) the budgeting process provides a structure to discuss decisions and actions of managers; (2) budgeting is a continuous process that requires attention from all managers on a day-to-day basis; (3) the budgeting process stimulates interaction of managers at different hierarchical levels; (4) the budgeting process is used by managers and employees to discuss the effects of organisational and environmental changes. These items elicit managerial responses that are equal to, yet more global than, the list of detailed behavioural items used in the recent study of Chapman and Kihn (2009).[10]

3.3. *Controller roles*

Importance of business partner role was measured with the items that Maas and Matějka (2009) used to assess controllers' decision-making support of local managers. We asked the participants

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Table 3. Descriptive statistics.

Variable	Mean	SD	Min	Median	Max
1. Interdependence A (impact ON others)	2.95	1.16	1.00	3.00	5.00
2. Interdependence B (impact OF others)	3.08	1.13	1.00	3.00	5.00
3. Environmental uncertainty	3.00	0.54	1.40	3.00	4.00
4. Task uncertainty	3.32	0.75	1.50	3.38	5.00
5. Coercive budget use	2.78	0.70	1.25	2.75	5.00
6. Enabling budget use	3.73	0.58	1.50	3.75	5.00
7. Corporate policeman role	3.86	0.55	1.40	4.00	5.00
8. Business partner role	3.83	0.71	1.00	3.80	5.00

Note: Descriptive statistics refer to construct scores calculated as the mean score of the individual items. N for all constructs is 134.

to indicate the importance of the following five tasks in their job: (1) analysing product/customer profitability, (2) evaluating investment opportunities, (3) developing local business strategy, (4) helping to meet local targets, (5) reducing costs and increasing earnings. Importance of corporate policeman role was measured in a similar way. We asked respondents to indicate how important the following five tasks were in their job: (1) developing internal controls and procedures; (2) ensuring that the BU observes all financial reporting requirements; (3) developing performance reports for higher level managers; (4) assessing whether the BU observes agreements with corporate headquarters and adheres to company regulations; and (5) ensuring that BU managers do not spend more than strictly necessary from a corporate perspective.

We examine the paths in our model analytically using partial least squares (PLS).[11] Apart from environmental uncertainty, all multi-item constructs were modelled as reflective constructs. Environmental uncertainty was modelled as a formative construct because we had no a priori reason to believe that the items measuring the predictability of different aspects of the environment were manifest indicators of one latent factor, causing the observed levels of predictability. Table 3 provides descriptive statistics for the constructs and Table 4 shows the bivariate correlations between the constructs.[12]

4. Results

Following the guidelines of Hulland (1999), we analyse separately the measurement model and the structural model. To evaluate the adequacy of the measurement model we assess

Table 4. Correlations of latent variables.

	1	2	3	4	5	6	7
1. Interdependence A (impact OF others)							
2. Interdependence B (impact ON others)	0.674**						
3. Environmental uncertainty	0.161	0.162					
4. Task uncertainty	−0.040	−0.063	0.204*				
5. Coercive budget use	0.152	0.139	0.261**	0.184*			
6. Enabling budget use	0.226**	0.011	0.035	0.188*	0.191*		
7. Corporate policeman role	0.162	0.105	0.145	0.145	0.297**	0.365**	
8. Business partner role	0.308**	0.188*	0.344**	0.053	0.141	0.291**	0.412**

Note: $N = 134$. Two-tailed significance levels: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

Table 5. Composite reliability and average variance extracted.

Variable	CR	AVE
1. Interdependence A (impact OF others)	1.00	1.00
2. Interdependence B (impact ON others)	1.00	1.00
3. Environmental uncertainty[a]		
4. Task uncertainty	0.92	0.58
5. Coercive budget use	0.76	0.46
6. Enabling budget use	0.79	0.48
7. Corporate policeman role	0.65	0.30
8. Business partner role	0.83	0.51

[a] We do not obtain CR or AVE scores for environmental uncertainty because this is a formative construct.

the constructs' composite reliability, focusing on the composite reliability (CR) measure developed by Werts *et al.* (1974) and average variance extracted (AVE) (Fornell and Larcker 1981). Both are reported in Table 5. The interpretation of the CR measure is similar to that of Cronbach's alpha; however, different from alpha, CR does not assume all indicators have an equal weight in the composition of the construct. Table 5 confirms that the composite reliability of all constructs is moderate to good, as all scores exceed the minimum threshold of 0.6 and most are higher than 0.8 (cf. Nunnally and Bernstein 1994, Hair *et al.* 1998). AVE indicates how much variance is shared between a latent construct and its indicators. Most AVE scores are close to, or higher than, the threshold value of 0.5 that indicates that at least 50% of indicator variance is accounted for by construct variance rather than noise.[13] Together, the results of these preliminary analyses confirm the adequacy of the measurement model.

To test the structural model that includes the hypotheses and the exploratory paths from the different types of uncertainty to the roles of the control system and the roles of the controller, we run a PLS bootstrapping procedure (with 5000 subsamples with replacement) and evaluate the path coefficients and their significance. The results from this bootstrap are given in Table 6. Table 6 reports the path coefficients, the associated t-values and their significance and the R^2 statistics of the endogenous constructs. Figure 3 graphically depicts the significant paths.

Regarding the effects of uncertainty, a first interesting finding is that none of the four uncertainty measures significantly influences coercive budget use or corporate policeman role. Next, the results indicate that interdependence and environmental uncertainty – but not task uncertainty – affects enabling budget use. Enabling budget use is higher if the impact of others is higher (coefficient $= 0.40$, $p < 0.001$) and if environmental uncertainty is higher (coefficient $= 0.19$, $p < 0.05$), but it is lower in units that have a higher impact on others (coefficient $= -0.24$, $p < 0.01$). Finally, the paths from both task uncertainty (coefficient $= 0.32$, $p < 0.01$) and the impact of others to business partner role (coefficient $= 0.21, p < 0.05$) are significantly positive. The predictive validity of the model is considerable, with values of R^2 for the endogenous constructs ranging from 0.10 (coercive budget use) to 0.24 (business partner role). Overall, these findings provide limited support for Hypotheses 1 and 2.

In support of Hypothesis 3, Table 6 shows that the path from enabling budget use to business partner role is significantly positive (coefficient $= 0.25, p < 0.001$). In addition, the path from enabling budget use to corporate policeman role is positive and significant (coefficient $= 0.31$, $p < 0.01$). Coercive budget use has a significantly positive effect on corporate policeman role (coefficient $= 0.20, p < 0.05$) but no effect on business partner role. Overall, these results are in line with our predictions.

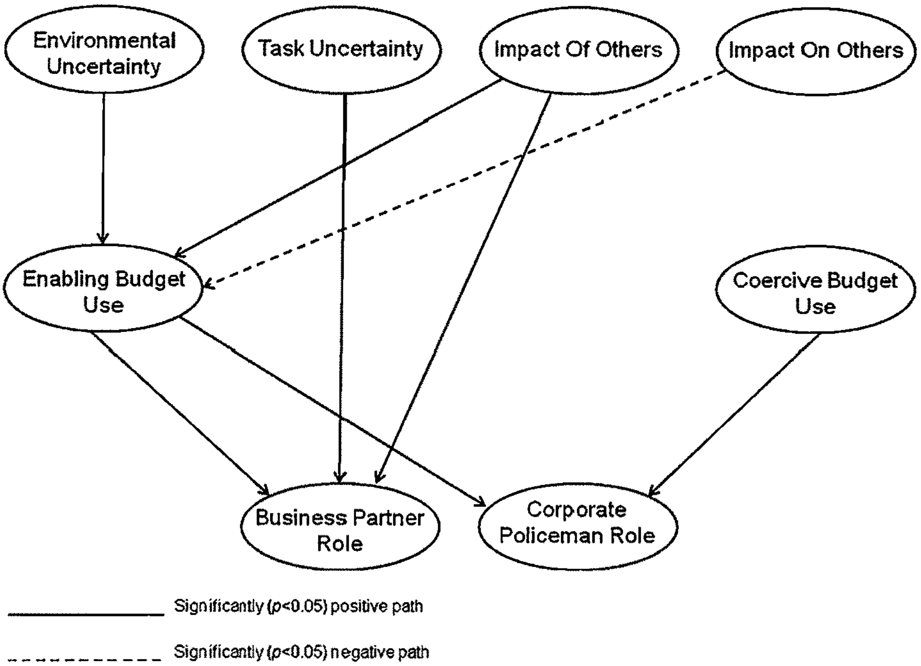

Figure 3. Significant paths.

5. Discussion, limitations and conclusion

This paper set out to explore why the role of the controller varies across BUs. Specifically, we investigated how different types of uncertainty influence the controller's role, looking at both direct effects and indirect effects through the role of the unit's budgeting system.

Table 6. Path coefficients and R^2 statistics.

	Path to:			
Path from:	Coercive budget use	Enabling budget use	Corporate policeman role	Business partner role
1. Interdependence A (impact OF others)	0.09 (0.71)	0.40*** (3.35)	0.01 (0.07)	0.21* (1.89)
2. Interdependence B (impact ON others)	0.06 (0.44)	−0.24** (2.08)	0.06 (0.38)	−0.01 (0.06)
3. Environmental uncertainty	0.15 (1.37)	0.19* (1.74)	0.04 (0.26)	−0.05 (0.52)
4. Task uncertainty	0.21 (1.41)	−0.03 (0.24)	0.06 (0.43)	0.32** (2.07)
5. Coercive budget use			0.20* (1.87)	−0.01 (0.09)
6. Enabling budget use			0.31** (2.26)	0.25*** (2.84)
R^2	0.10	0.12	0.20	0.24

Note: t-values in parentheses. $N = 134$. Two-tailed significance levels: ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

Our investigation of uncertainty as an antecedent of control system and controller roles resulted in a number of interesting observations. First, neither coercive budget use nor the importance of controllers' corporate policeman role is affected by any type of uncertainty. Thus, the importance of controlling (as opposed to facilitating) the decisions of BU managers through budgets or BU controllers is insensitive to the level of uncertainty. This finding contradicts suggestions in the literature that, as uncertainty increases, control systems should become less rigid. These suggestions are based on the argument that pre-planning, behavioural constraints and monitoring become less effective since, as uncertainty increases, accounting performance measures become less informative about managerial performance (e.g. Chong 1996, Abernethy and Brownell 1997, Ditillo 2004). Such arguments, which focus on the contextual appropriateness of budgetary control, should therefore be complemented by arguments that suggest that when uncertainty increases, also the need for budgetary control goes up (e.g. Hartmann 2005) and these two effects might balance each other out.

Our data also show an interesting pattern in the association between the different types of uncertainty and the enabling use of budgets. Uncertainty characterised by unpredictable outside events (environmental uncertainty and uncertainty caused by the impact of other departments on the BU) are both types of uncertainty that positively affect enabling budget use. However, task uncertainty has no such effect, while uncertainty caused by the impact on others actually decreases enabling budget use. This confirms the conclusion of Hartmann (2005) that different types of uncertainty are likely to have different effects on the use of budgets. Using the budgeting system in an enabling way seems to be especially useful if the uncertainty originates outside the budget unit. In these situations, budgeting is used by managers to continuously update their beliefs about the environment and to discuss the threats and opportunities caused by the changing environment (Chapman 1998, Marginson and Ogden 2005). On the other hand, if the uncertainty is inherent in the unit's production technology then the benefits of enabling budget use are much less salient. We do find, though, that task uncertainty increases the importance of the controllers' business partner role. One possible explanation is that, in BUs that use more complex and less routine technologies, it is more important to continuously translate operational reality into financial figures (Chapman 1997). Thus, in relatively high task uncertainty BUs, controllers' value-added is maximised if they are employed at the interface of operations and finance to help operational managers understand how their behaviour ultimately affects the bottom line and how financial goals should impact on operations.

We also looked at the relationship between the role of the budgetary control system (enabling or coercive) and the role of BU controllers (business partner or corporate policeman). Despite the growing literature on both topics, Chapman (1998) to date is the only empirical study that we are aware of that has looked simultaneously at the roles of control systems and controllers under uncertainty. Our study builds on the fieldwork of Chapman (1998) by providing cross-sectional evidence that enabling budget use is positively associated with a higher emphasis on controllers' business partner role and that coercive budget use is positively associated with a higher emphasis on controllers' corporate policeman role. We also find a positive association between enabling budget use and the importance of the corporate policeman role. This result is important because it suggests that 'looser' forms of budgeting are accompanied by a stronger focus of controllers on guarding against managerial opportunism. In this sense, it supports Sathe's claim that controller involvement may 'put an early stop to ill-conceived, ill-advised, or illegal courses of action being contemplated, that is, before-the-fact or anticipatory control' (1982, p. 19).[14] As companies start using their budgeting system primarily to facilitate managers' decision-making processes and to allow learning, they counterbalance the increased vulnerability to managerial opportunism by strengthening BU controllers' ties to corporate headquarters and emphasising the importance of internal controls and adherence to company rules and regulations.

As specified in the introduction, this paper contributes to different streams in the management accounting literature, including the contingency literature on the design and use of control systems and the emerging literature on the roles of management accountants and controllers. We believe our findings are also interesting for business practice. Organisations around the world continue to struggle with the design of their budgeting systems and the structure of their organisational control function. Our study suggests that these two factors are not independent and that changes in the role of budgeting might call for accompanying changes in the role of controllers. Nevertheless, the literature in this area is still in an embryonic state and our research endeavours are of an exploratory nature. This is also reflected in its limitations. First, using data from a cross-sectional survey, this study is not immune to the limitations that are inherent in this research method and that have been discussed extensively in the literature (e.g. Young 1996, Van der Stede *et al.* 2005). For example, we assumed a causal direction in our analyses, but our cross-sectional analysis does not allow any definitive conclusions about causality (see Luft and Shields 2003). Although we tried to minimise such problems, for example, by closely following the guidelines of Dillman (2000), our data may suffer from common method bias or social desirability or other biases introduced by the survey procedure. Another limitation is that we partially had to rely on newly developed measures. While evaluation of the measurement model in PLS provided some indication that these new measures exhibit sufficient reliability and validity, future research is needed to further establish these measures. In interpreting our findings, it should also be taken into account that we only examined a limited set of linear relationships and for example did not allow for nonlinearities or interactions with variables at the level of the individual. This final issue is important because recent research suggests that individual differences between controllers are often predictive of unit level outcomes (Naranjo-Gil *et al.* 2009, Hartmann and Maas 2010, Ge *et al.* 2011).

Clearly, future research should address these limitations and should try to establish whether our findings hold in other settings and if research is conducted using alternative methods and measures. We also suggest a number of other areas where future research is needed. First, cross-sectional contingency studies that focus on the use, rather than of the design, of control systems are still relatively rare, as are studies that try to explain variations on controller function design from environmental and task-related characteristics. Next, we believe theoretical progress is needed with regard to both the role of control systems and controllers. We chose to use the enabling/coercive budget use framework (Adler and Borys 1996, Ahrens and Chapman 2004) and the business partner vs. corporate policeman framework (Jablonsky *et al.* 1993, Jablonsky and Keating 1998) because these are relatively comprehensive frameworks. However, we could also have chosen to focus on some other concepts, for example, interactive vs. diagnostic budget use (Simons 1995) and the involved vs. the independent controller (Sathe 1982). It is unclear how exactly, if at all, that would have changed our expectations or our findings since these concepts are to a large extent overlapping. Third, future research should also deal more fundamentally with the concept of uncertainty, especially managerial uncertainty as a driver of organisational design. For example, how exactly do environmental and task uncertainty differ? Finally, research is needed that explicitly links controller role enactment and behaviour with performance at various levels (i.e. the individual, the unit and the firm), as, currently, there are very few studies examining how the role(s) played by controllers ultimately impact on the methods for creating value in organisations and the amount of value so created.

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Notes

1. Throughout this paper, we use the job titles 'management accountant' and 'controller' interchangeably.
2. Two other styles of use described by Burchell *et al.* (1980) and Hopwood (1980) are use as an ammunition machine and use as a rationalisation machine. If the system is employed as an ammunition machine, organisational participants use it to manipulate information cues that enter decision-making processes to promote their own particular positions. If it is employed as a rationalisation machine, managers use accounting figures *ex post* to legitimise and justify their actions and decisions (Burchell *et al.* 1980). These styles of use may be considered non-functionalistic in the sense that they reflect accounting's role in the organisational politics surrounding decision-making processes instead of a potentially value-adding activity.
3. In addition, the original classification of Hopwood (1972) has been criticised for its lack of analytical sharpness. Recently Hartmann *et al.* (2010) showed that the evaluation styles may be multidimensional and comprise both general leadership characteristics and the choice of (non-)financial performance metrics.
4. While we assume that the emphasis placed on alternative controller roles represents a design choice made by the organisation, we also acknowledge that in some organisations individual controllers might have some discretion in choosing how to enact their alternative roles.
5. Chapman (1998) did not explicitly differentiate between types of uncertainty, as uncertainty was related to the strategic choice of the firm. The firm showing the highest performance had chosen an entrepreneurial strategy that led to both high task and environmental uncertainty. In this firm, the interaction between controllers and line managers appeared to be the highest of the four firms investigated.
6. This project also provided the data for Maas and Matějka (2009). The items used to measure the controllers' business partner role in our study were also used in Maas and Matějka (2009). Environmental uncertainty, task uncertainty and interdependence served as control variables in that study, which focused on the controller's engagement in data misreporting.
7. The 'Controllers Instituut' (CI). See www.ci.nl for a more detailed description, in English, of the CI and its activities.
8. We drop controllers who work for multiple units because they might play different roles in different units. Given the items that we use to measure our variables, this would make it difficult to interpret their responses.
9. The same test using all 186 questionnaires received also indicated that there was no non-response bias.
10. The instrument used by Chapman and Kihn (2009) only measures enabling control and does not address coercive control. Their instrument comprises 20 items that reflect various managerial behaviours that the budgeting system evokes, in four categories. Note, however, that their hypotheses refer to the global construct of enabling control rather than its four underlying dimensions. The global construct is the focal point in their analysis.
11. We use Smart PLS 2.0 (Ringle *et al.* 2005).
12. The descriptive statistics refer to construct scores that were calculated as the mean of their indicator scores and not to the scores obtained by PLS. PLS calculates construct scores as a weighted average of standardised item scores and, as such, the PLS means are not very informative as descriptive representations of the sample data.
13. The single exception is the AVE for the corporate policeman role, which is 0.30.
14. We thank one of the reviewers for this suggestion.

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Hedge accounting and its influence on financial hedging: when the tail wags the dog

MARTIN GLAUM* and ANDRÉ KLÖCKER

Justus-Liebig-University. Giessen, Department of International Accounting, Licher Strasse 62, 35394 Giessen, Germany

We analyse the application of hedge accounting and its influence on hedging behaviour in German and Swiss non-financial corporations. Of our sample companies, 72% apply hedge accounting. The likelihood of its use is associated with frequency of derivatives usage, size, IFRS experience, perceived importance of reduced earnings volatility and low growth opportunities. More than half of the companies using hedge accounting indicate that the accounting rules influence their hedging behaviour. Companies are more likely to be affected if they use derivatives only occasionally, are smaller, are highly leveraged, have dispersed shareholding, have fewer growth opportunities and hedge selectively.

Keywords: hedge accounting; hedging; IAS 39; derivatives; risk management; SFAS 133

> Derivatives within the BASF Group are generally used for hedging purposes. The bulk of these contracts, however, are not accounted for using hedge accounting as defined under IFRS. Nonetheless, these derivatives are effective hedges in the context of the group strategy. (BASF AG 2006, p. 101)

> We decided that our hedging was not economically necessary and we stopped it before implementation. We didn't want to get involved with IAS 39. (Jon Symonds, Chief Financial Officer, Astra Zeneca plc, 2006)

> Any standard that needs more than 200 interpretations has got to have a major defect. (Sir David Tweedie, Chairman of the IASB, 2001)

1. Introduction

From its inception in 1998, IAS 39, 'Financial Instruments: Recognition and Measurement', has met with fierce criticism. The same holds true for its US GAAP counterpart, SFAS 133,

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*Corresponding author. Email: martin.glaum@wirtschaft.uni-giessen.de

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'Accounting for Derivative Instruments and Hedging Activities'. One of the focal points of the debate is the set of rules for hedge accounting promulgated by the standards.[1] Accountants, auditors and academics have denounced the rules as overly complex, restrictive and excessively burdensome (Osterland 2000, AFP 2002, Pollock 2005).

With hedging, companies strive to reduce exposure to financial risks by setting up offsetting positions, typically with the help of derivative financial instruments. Under normal accounting rules, the hedged item and the derivative are often accounted for differently so that gains and losses resulting from the two instruments are not reported simultaneously in profit or loss. Hedge accounting is a set of special rules designed to ensure that gains and losses on hedged items and hedging instruments are recognised in the same period, thereby preventing earnings volatility that is not economically justified. However, in order to ensure that managers cannot abuse the exceptions from general recognition and measurement principles for earnings management purposes, IAS 39 and SFAS 133 define rules under which hedge accounting may be applied.

It is this set of detailed rules that makes hedge accounting complex and burdensome for companies. The first of the above three quotations, taken from the 2005 financial report of a large German chemical company, suggests that the restrictions imposed by IAS 39 might induce some companies to shrink from applying hedge accounting altogether, even though this is likely to increase earnings volatility. The second, coming from the CFO of a large British pharmaceutical company, points to an even more serious allegation: that IAS 39 induces companies to reduce their level of hedging because the strategies they would normally apply are not permissible under IAS 39 (Osterland 2000, Pollock 2005).

IAS 39 (and SFAS 133) may thus present companies with a dilemma. Given the standard's restrictive and rigid rules, companies can either implement the risk management strategies they consider economically optimal, forgo hedge accounting and accept earnings volatility, or apply hedge accounting to reduce earnings volatility, but accept sub-optimal risk management strategies. In both cases, firm value is likely to suffer.

Despite the intense controversy surrounding IAS 39 (and SFAS 133) there is very little empirical evidence on the application of hedge accounting by non-financial companies or on how hedge accounting rules influence companies' risk management. Our study is intended to fill this void. Based on a survey study of German and Swiss non-financial stock-listed companies undertaken in the winter of 2007–2008, we investigate how companies manage their financial risks. For those companies that actively manage financial risks with derivatives, we then analyse whether they do or do not apply hedge accounting and which factors determine this decision.[2] Furthermore, for companies that apply hedge accounting we analyse whether IAS 39 hedge accounting rules affect their financial risk management and which factors drive this influence.

More than 90% of the companies that took part in our survey manage financial risks with derivative financial instruments. However, only 72% of the companies that manage risks with derivatives also apply hedge accounting. Our evidence suggests that larger companies and companies that frequently use derivatives for hedging purposes are more likely to apply hedge accounting. This is to be expected, since it is relatively easy for these companies to amortise the costs of hedge accounting. We also find that the likelihood of using hedge accounting is positively related to companies' experience with IFRS. As one would expect, companies for which the reduction of earnings volatility is important are also more likely to apply hedge accounting. However, while we had expected companies with growth opportunities to be concerned about earnings volatility and thus to be prone to employing hedge accounting, our findings indicate that growth companies are actually less likely to apply hedge accounting than companies in more mature markets.

With regard to our second major line of investigation, we find that more than half the companies that apply hedge accounting indicate that IAS 39 hedge accounting rules do indeed

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influence their hedging behaviour. Our results with respect to the reasons for this influence, while not as strong, suggest that larger companies and those that often use derivatives are less likely to be affected in this way. In contrast, high leverage, dispersion of ownership and scarcity of growth opportunities increase the likelihood that risk management will be influenced by IAS 39. In addition, companies are more likely to be affected by the hedge accounting rules if they follow selective hedging strategies, i.e. profit-orientated strategies based on forecasts of market rates (Glaum 2002, Lins *et al.* 2010).

Our research contributes to the existing literature in the following ways. First, our study provides empirical evidence on the application of IAS 39 hedge accounting rules by non-financial companies. Second, we provide evidence on whether hedge accounting rules influence companies' risk management practices. Previous studies on the effects of IAS 39 and SFAS 133 mostly have tried to infer the impact of hedge accounting rules indirectly by analysing companies' economic exposures to financial risk factors before and after implementation of the accounting standards (Singh 2004, Richie *et al.* 2006, Zhang 2009). However, within these time-series studies it remains unclear how sample companies actually manage their risks and, in particular, whether they use derivatives solely for hedging or also for speculative purposes (Hentschel and Kothari 2001, Géczy *et al.* 2007, Lins *et al.* 2010). For this reason, it is not fully clear whether changes in companies' exposures are caused by the changes in the accounting standards or by other factors. Analysis of companies' footnote disclosures in financial statements also allows only limited insights. The disclosures are often not very detailed (Hentschel and Kothari 2001), and managers purposely do not fully disclose available information about their risk management strategies (Marshall and Weetman 2007, 2008). By using a survey design, we elicit in detail how companies manage risks, how they use derivatives, how they apply the hedge accounting rules of IAS 39 and how these rules affect their risk management practices. Third, our study indicates that whether non-financial companies do or do not apply hedge accounting can be explained by the costs of applying the burdensome and restrictive rules and by the expected benefits, namely, the reduced earnings volatility. And, to a lesser degree, our findings suggest that the impact of IAS 39 on companies' risk management is also a function of the costs and benefits of applying hedge accounting.

Our study is timely because of the current efforts to reform accounting for financial instruments. In March 2008 the International Accounting Standards Board (IASB) issued a discussion paper entitled 'Reducing Complexity in Reporting Financial Instruments', in which it discussed the possibilities of simplifying the application of hedge accounting (IASB 2008). Because of the financial crisis and intense political pressure from the European Union, the Board later accelerated this project. It now plans to replace IAS 39 with a new standard (IFRS 9). In a first step, in November 2009 the Board issued new rules for classifying and measuring financial instruments (IASB 2009a).[3] At the same time, it issued an exposure draft on the impairment of financial instruments (IASB 2009b). Finally, in December 2010, it also published an exposure draft on accounting for hedging activities (IASB 2010). The Board believes that the proposed hedge accounting rules are more objectives-based than those of the current IAS 39, that they overcome weaknesses of the current model and that they align accounting more closely with risk management practices and hence generate more useful information (IASB 2010, para. IN3).[4] Officially, the IASB's financial instrument project is a joint project with the US Financial Accounting Standards Board (FASB). Nonetheless, in June 2010, the FASB published its own exposure draft on accounting for financial instruments (FASB 2010), which differs in major respects from the IASB's proposals.

The rest of the paper is organised as follows. In the next section we give a brief overview of the hedging of financial risks with derivatives and accounting for these transactions. Section 3 reviews the literature addressing hedge accounting and its impact on risk management.

In section 4 we develop our predictions concerning the application of hedge accounting and the influence of IAS 39 hedge accounting rules on the hedging behaviour of non-financial companies. Section 5 describes our sample and the empirical methodology. Our research findings are presented in section 6. Section 7 concludes the paper with a short summary.

2. Institutional background

2.1 *Financial hedging*

Hedging describes the process of offsetting exposures to business risks. This paper focuses on financial risks that can be managed by financial instruments, in particular with derivatives (Bartram *et al.* 2009). The most important financial risks faced by non-financial corporations are foreign exchange, interest rate and commodity price risks (Servaes *et al.* 2009). In a world of perfect capital markets, financial hedging at the company level would not be necessary, as investors would be able to construct such hedges on their own at no cost. However, under more realistic assumptions of information asymmetries, costs of financial distress, taxes and other forms of market imperfections, hedging financial risks can increase company value (Smith and Stulz 1985, Froot *et al.* 1993).

A company may use financial and operational hedges. One common example of an operational hedge against foreign currency risks is geographical diversification. By aligning costs and revenues across foreign currencies, companies can mitigate their exposure to specific exchange rates. However, even though foreign exchange risks can be managed this way, Allayannis *et al.* (2001) show that operational hedges are not a perfect substitute for financial hedging, and Kim *et al.* (2006) find that financial hedging is more effective than operational hedging. This superiority of hedging with financial instruments is mainly based on its greater flexibility and on the lower capital investment requirements.

Financial hedging is commonplace in many non-financial companies (e.g. Bodnar *et al.* 1995, Marshall 2000, Glaum 2002, Nguyen and Faff 2002). Survey studies indicate that, in many companies, financial risk management is centralised at corporate headquarters (Bodnar *et al.* 1995, Fatemi and Glaum 2000, Glaum and Klöcker 2009). Centralised risk management enables companies to balance out long and short positions and to calculate the group-wide net positions for currencies, interest rates or commodities. Only these net exposures need to be hedged in the derivatives markets, and the lower hedging volume saves transaction costs (Shapiro 2006, pp. 350–351). Furthermore, centralisation allows the firm to benefit from economies of scale (larger overall positions, employment of specialised know how, access to international financial markets).

Companies may use derivative financial instruments not only to hedge existing exposures but also to build up additional, speculative positions. Findings of survey studies and disclosures in financial reports suggest that most non-financial companies do not engage in outright speculation. However, empirical studies consistently show that many companies follow 'selective' hedging strategies, in particular in the area of foreign exchange risk (Greenwich Treasury Advisors 1999, Bodnar and Gebhardt 1999, Glaum 2002, Géczy *et al.* 2007, Glaum and Klöcker 2009). That is, companies hedge only risk positions for which they expect a currency loss while leaving open positions for which they expect a gain, given forecasts of changes in exchange rates. Inasmuch as the companies purposely leave some of their positions unhedged in order to gain from such changes, selective hedging contains a speculative element.

2.2 *Hedge accounting according to IAS 39*

The fundamental problem in accounting for hedging relationships is that two transactions, the hedged item and the hedging instrument, are economically linked to each other. With hedging, changes in the value (or in the cash flows) of the hedged item will be compensated by reciprocal changes in the hedging instrument. If general accounting principles are applied, the two transactions have to be measured on an item-by-item basis. Under the current set of recognition and measurement rules, the offsetting gains and losses are often recognised in different periods. The hedging instrument is usually a derivative financial instrument and must therefore be recognised at fair value through profit or loss. The hedged item, on the other hand, will often be accounted for differently ('mixed measurement model'). It may be measured at cost or at fair value through other comprehensive income, or it may not be recognised at all if the company hedges risks associated with forecast transactions. Such 'accounting mismatches' lead to economically unjustified earnings volatility.

To avoid these problems, IAS 39 provides two methods of hedge accounting, fair value and cash flow hedge accounting, as exceptions to the general accounting rules.[5] Put simply, with fair value hedge accounting the accounting for the hedged item is aligned with that of the hedging instrument by shifting income recognition of the value changes of the hedged item forward in time. The value changes of the hedged item determined by the hedged risk are immediately recognised in profit or loss, symmetrically with those of the hedging instrument (IAS 39.89).[6] With cash flow hedge accounting, on the other hand, the recognition of value changes of the hedging instrument in profit or loss is deferred to a later point in time when the corresponding value changes of the hedged item affect earnings. More precisely, the value changes of the hedging instrument that are effective in the sense that they compensate changes in the value of the hedged item determined by the hedged risk are 'parked' in equity. They are 'recycled' when the hedged item affects profit or loss (IAS 39.95–99).

IAS 39.88 requires that a number of conditions must be cumulatively fulfilled in order for hedging relationships to qualify for hedge accounting (see Ghosh 2006 for details). First, the company must designate and document the hedging relationship at the inception of the hedge. Second, the hedging relationship must be expected to be 'highly effective' and the effectiveness must be assessed throughout the duration of the hedge. Third, for hedges of forecast transactions, it must be 'highly probable' that the transactions will take place.

The effectiveness test is often considered to be the most difficult and burdensome aspect of hedge accounting under IAS 39.[7] According to IAS 39.9, effectiveness is the degree to which changes in the fair value or cash flow of the hedged item that are attributable to a hedged risk are offset by corresponding changes in the hedging instruments. IAS 39 requires two kinds of effectiveness tests. The prospective effectiveness test is a forward-looking test of whether a hedge is expected to be highly effective in the future. This test has to be conducted at the inception of the hedge and repeated during the hedge relationship, at a minimum at the dates when the company prepares its annual or interim financial statements (IAS 39.AG106). Moreover, at each test point it has to be demonstrated that the hedge relationship has actually been highly effective in the past (the retrospective effectiveness test). Should one of the effectiveness tests fail, hedge accounting must be terminated from the date on which effectiveness was last proved (IAS 39.AG113).

Ineffectiveness can arise from differences in the principal terms of the hedged item and the hedging instrument – for example, differing amounts, settlement dates or credit risks. With the hedging of commodity price risks, ineffectiveness can also arise if, owing to a lack of availability, the hedging derivative is based on a different quality or even on a different raw material than the hedged item.

IAS 39.84 prohibits designating a net position as a hedged item. For example, a company may not designate the net balance from its US dollar receivables and its US dollar payables as a hedged item. The reason is that, for reliability, there must be a clearly identifiable relationship between the hedged item and the hedging instrument (IAS 39.78 and 39.83–84). Such a relationship usually exists when individual items are hedged by individual hedging instruments (a micro-hedge). The standard allows firms to combine several hedged items only when they share the same risk exposure and the value changes of individual items in response to the risk factor are more or less proportionate to the value change of the whole portfolio.[8] This is, of course, not the case with a net position made up of long and short positions. Thus the micro-hedge approach of IAS 39 is not compatible with the well-established practice of centralising and netting risk exposures at companies' headquarters (macro-hedging).

3. Previous research

Below, we discuss (1) studies that focus on whether and how companies apply hedge accounting and (2) studies that investigate the impact of IAS 39 or SFAS 133 hedge accounting rules on companies' risk management. Despite the controversy that surrounds hedge accounting, only a few academic studies address these issues.

To our knowledge, the only study that analyses the application of hedge accounting in any detail is a survey study of 175 non-financial companies by the Association of Financial Professionals (AFP) in the US in the summer of 2002, two years after the introduction of SFAS 133 (AFP 2002). Most of these companies applied hedge accounting at least for some of their hedges. However, depending on the type of risk hedged, up to 35% of companies decided not to apply hedge accounting for their derivative holdings. Almost half the respondents described the accounting rules as 'excessively burdensome'. However, this study does not analyse which factors determined whether or not companies applied hedge accounting. Pirchegger (2006) discusses under which conditions hedge accounting will be applied within the framework of an agency model where management compensation is based on accounting income. Under her model, if operational exposures are smooth across periods, the company will forgo hedge accounting. If, on the other hand, the company's risk exposure differs markedly across periods and compensation risk therefore is high, hedge accounting will be applied.

Our second research question is whether the standards for financial instruments and hedge accounting (SFAS 133 and IAS 39) influence non-financial companies' risk management.[9] Melumad *et al.* (1999) show that, in a three-period model with information asymmetries between management and investors, both fair value hedge and cash flow hedge accounting as prescribed by SFAS 133 and IAS 39 distort the optimal economic hedge. Under both accounting regimes, the financial statements for the interim period, and especially the presented earnings, do not transmit all relevant information about the underlying risk exposure of the firm and the hedging decision taken by management in the first period. Consequently, managers shy away from the optimal hedge in the initial period to prevent negative market reactions in the following period resulting from incomplete information. DeMarzo and Duffie (1995) also show in their model that requiring companies to report detailed results of their hedging activities may induce managers to hedge less, because the reporting makes earnings more obviously reflect managerial performance. Risk-averse managers may forgo hedging in order to avoid the increased transparency.

An empirical study by Marshall and Weetman (2007) documents that managers indeed choose not to disclose all available information about their risk management if given scope for discretion. The authors analyse financial statements of US and UK companies with regard to disclosures concerning foreign exchange risk management and compare the information content with information elicited by a survey on this topic. Using a coding checklist, they find that companies disclose only about 40% of the items that the questionnaire results suggest are relevant.

Some empirical studies attempt to infer the economic effects of accounting standards on the extent of hedging by studying footnote disclosures in annual reports and the properties of key financial accounting numbers and share prices. However, the results of these studies are not fully conclusive. Singh (2004) analyses a sample of 305 US Fortune 500 companies and finds that neither usage of derivatives nor the companies' risk characteristics changed following the introduction of SFAS 133. Richie *et al.* (2006) look at a sample of US multinational companies and document an increase in earnings volatility and a decrease in earnings predictability after implementation of SFAS 133. In a more recent paper, Zhang (2009) concludes that the increased transparency required by SFAS 133 has induced US companies to adopt more prudent risk management strategies. All three papers rely on archival data, and the methods applied do not allow direct observation or measurement of companies' hedging behaviour. As Lins *et al.* (2010) point out, Zhang's (2009) results should be interpreted with caution 'since it is not possible using archival data to determine with much confidence whether a firm uses derivatives to hedge or to speculate'. Moreover, none of the three papers investigates which factors determine whether hedge accounting influences companies' hedging activities.

A current working paper by Lins *et al.* (2010) is based on a worldwide survey of non-financial companies. In 2005, the questionnaire was sent to about 4000 companies in 48 countries; 354 companies took part in the study. A significant portion of the participants affirmed that the accounting standards have compromised their ability to hedge from an economic perspective. Companies from countries with a high quality of financial reporting and strict enforcement were more likely to be affected by the accounting standards, as were stock-listed companies, companies that took active, speculative positions and companies that prioritised reducing earnings volatility. In contrast, companies with more sophisticated (i.e. institutional) investors were less likely to be hampered by the standards. However, even though the study by Lins *et al.* (2010) analyses the impact of SFAS 133 and IAS 39, a substantial number of the responding companies did not apply either SFAS 133 or IAS 39 because they were located in countries that did not allow the application of IFRS or US Generally Accepted Accounting Principles (US GAAP). Furthermore, the sample comprised both stock-listed and private companies, and many of the latter are unlikely to apply IFRS or US GAAP even if they reside in countries that require these standards for stock-listed companies. In comparison, the present study is based on a survey that was addressed to German and Swiss stock-listed companies, all of which are required to apply IFRS for their consolidated financial statements.

4. Predictions

4.1 *Which companies apply hedge accounting?*

Our first main research objective is to analyse which factors drive non-financial companies' decision of whether or not to apply hedge accounting. Our fundamental proposition is that the choice is driven by benefits and costs (Fields *et al.* 2001). In what follows we develop more specific predictions.

4.1.1 *Benefit-based predictions*

In their survey of financial executives, Graham *et al.* (2005) document that earnings are the most important performance measure for company managers in their communication with outsiders. Executives have a strong preference for a smooth earnings path, and they are willing to sacrifice long-term firm value in order to achieve short-term earnings targets (also see DeFond and Park 1997). There may be several reasons for this. A constant earnings path can improve the information content of earnings (Tucker and Zarowin 2006), and Barth *et al.* (1999) show that capital markets reward companies with constantly increasing earnings. Moreover, if companies' cost of financial debt is linked to accounting earnings, managers may prefer a smooth stream of earnings in order to fulfil contractual obligations such as debt covenants based on financial statement figures (Watts and Zimmerman 1990, DeAngelo *et al.* 1994, DeFond and Jiambalvo 1994, Becker *et al.* 1998). Finally, if financial accounting is linked to tax accounting, companies may be able to reduce their overall tax burden by smoothing income (e.g. Healy and Wahlen 1999). For these reasons, we generally expect companies that regard reducing earnings volatility as a major goal of financial risk management to be more likely to apply hedge accounting (Lins *et al.* 2010).

Economic reasoning and results of empirical studies suggest that reduction of the expected costs of financial distress is an important economic argument in favour of hedging (Guay 1999, Graham and Rogers 2002, Borokhovich *et al.* 2004, Bartram *et al.* 2009). As we explained above, the beneficial effect of hedging on the company's financial situation may be visible to equity investors and creditors only if the company can apply hedge accounting in its financial statements. This is the more important the higher a company's financial risk. Thus we expect a positive correlation between a company's leverage and the likelihood that it will apply hedge accounting.

Next, high-growth companies depend on the capital markets to fund profitable future investment projects (Teoh *et al.* 1998, Hribar and Nichols 2007). At the same time, growth opportunities are often associated with a high degree of information asymmetry. Therefore companies with more growth opportunities are harder for outside investors to value (Van Ness *et al.* 2001), which in turn raises the cost of capital (Barry and Brown 1985, Lang and Lundholm 1996). A constant earnings path can reduce the estimation risk for investors (Barron *et al.* 1999, Dichev and Tang 2009). Therefore we suggest that growth companies have an incentive to reduce earnings volatility as much as possible by applying hedge accounting.

We also consider the possible influence of company ownership structures on corporate governance and, thereby, on financial reporting (Marshall and Weetman 2007). Because of their active role in monitoring management (Butz 1994, Bethel *et al.* 1998), large shareholders have more information about the financial position of the firm and need not rely solely on published accounting numbers such as earnings. Their direct access to management and their usually more sophisticated handling of corporate information (Healy and Palepu 1993) will tend to reduce the benefits of smoothing earnings through hedge accounting (Lins *et al.* 2010). We therefore expect ownership concentration to reduce the likelihood of the application of hedge accounting.

4.1.2 *Cost-based predictions*

Hedge accounting seems beneficial for all hedgers (Trombley 2003); however, it carries significant costs. In order to apply hedge accounting, companies need accounting experts who are familiar with the complex set of rules as well as reporting systems that allow for adequate documentation of the hedging relationships and for an ongoing assessment of their effectiveness. The development and the continuing service of such systems are associated with fixed costs and thus with economies of scale. This leads to three interrelated predictions. First, we expect a positive relationship between company size and the application of hedge accounting. Larger companies generally have more resources; for example, Corman (2006, p. 69) reports that General Electric employs approximately 40 full-time employees to ensure the accuracy of its hedge accounting.[10] Second, companies can amortise the costs associated with hedge accounting if they frequently use derivatives for hedging purposes.[11] We therefore expect a positive relationship between the intensity of the use of derivatives and hedge accounting. Third, empirical studies document a close relation between companies' financial risks and their derivative usage; the higher its financial exposure, the more likely a company is to hedge with derivatives (Géczy *et al.* 1997, Allayannis and Ofek 2001, Bartram *et al.* 2009). We therefore expect companies for which financial risks are important to be more likely to apply hedge accounting.

The application of hedge accounting may also be related to companies' experience with IFRS. Since 2005, German listed companies have been required to use IFRS in preparing their consolidated financial statements, and Swiss listed companies have been required to apply either IFRS or US GAAP. However, some German and Swiss companies voluntarily started to apply IFRS as early as the first half of the 1990s. Hedge accounting and accounting for financial instruments in general are among the most complex and burdensome aspects of IFRS. Thus, it appears reasonable to assume that some companies may have adopted a step-by-step approach. That is, they may first have implemented other sections of IFRS and may have adopted hedge accounting at a later stage, after gaining experience and after setting up more advanced information systems. This leads us to predict a positive relation between the length of time a company has already been preparing IFRS financial statements and the likelihood of its applying hedge accounting.

Hedge accounting may also entail indirect costs. Difficult questions can arise and, despite the detailed rules of the Application Guidance and the Illustrative Examples of IAS 39, company management will often have to exercise judgement in applying the rules. This is likely to lead to discussions and conflicts with the company's auditor and possibly with enforcement agencies. Such disputes cost management time and attention, as well as increased audit and consultancy fees. Furthermore, there are also the dangers of damaging the company's reputation and the threat of litigation.

The indirect costs may be related to the type of auditor. Empirical studies suggest that financial statements audited by international Big 4 auditors show a higher quality than those audited by non-Big 4 auditors (Teoh and Wong 1993, Becker *et al.* 1998, Krishnan 2003, Geiger and Rama 2006), perhaps because Big 4 firms bear a higher reputation risk (Francis and Wang 2008). Their stricter interpretation of accounting rules may raise implementation costs and may generally hamper the application of hedge accounting as management's discretion decreases. On the other hand, the large international Big 4 audit firms, with their national offices and technical experts, may provide better client support than smaller, national or regional audit firms, improving financial statements and reducing litigation and disputes with enforcement agencies. Therefore we propose that the type of auditor influences the application of hedge accounting, but we do not predict the direction of this influence.

4.2 *Which companies are influenced in their hedging behaviour by hedge accounting rules?*

Our second research objective is to analyse the factors that determine whether hedge accounting rules affect companies' financial risk management. Our major premise is that hedge accounting will affect risk management only if company managers are very concerned about the volatility of reported earnings. Hence, we predict that companies that perceive reducing earnings volatility to be a major goal of financial risk management are more likely to be affected by hedge accounting rules (Lins *et al.* 2010). Furthermore, given the arguments presented above in section 4.1, we predict that financial risk (leverage), ownership dispersion and growth opportunities will also increase a company's likelihood of being affected by the accounting standards.

Cost-related factors may also affect the relationship between the accounting rules and financial hedging. As we explained in section 4.1, large companies, companies for which financial risks are important, companies that regularly hedge with derivatives and companies that are experienced in the application of IFRS are likely over time to develop routines for the accounting of hedging transactions. Thus, for these companies the application of IAS 39 hedge accounting may be less burdensome and less difficult to achieve without compromising optimal risk management practices. We therefore predict that company size, the importance of financial risks, the use of derivatives and experience with IFRS all decrease a company's likelihood of being affected by hedge accounting.

The type of auditor may also influence the likelihood of companies' risk management being influenced by hedge accounting rules. Again, we do not predict the direction of this influence. The potentially stricter interpretation of hedge accounting rules by Big 4 auditors may make it more difficult for companies to achieve hedge accounting treatment for the hedging relationships they ideally would like to implement. At the same time, Big 4 audit firms may provide better expertise and support, which may enable their clients to apply hedge accounting without a negative impact on risk management practices.

Another factor that may influence the relationship between hedge accounting and hedging is the type of risk management the company pursues. Theoretical work on the effects of hedge accounting emphasises that the disclosures entailed by hedge accounting may influence corporate hedging strategies (DeMarzo and Duffie 1995, Melumad *et al.* 1999). The findings of Zhang (2009) suggest that the increased transparency brought about by SFAS 133 has induced US companies to adopt more prudent risk management strategies. As we mentioned above, it is known from survey studies that a high proportion of companies hedge selectively (Greenwich Treasury Advisors 1999, Bodnar and Gebhardt 1999, Glaum 2002, Géczy *et al.* 2007, Glaum and Klöcker 2009). In these companies, the hedge ratios are influenced by management's views on future exchange rates, interest rates and commodity prices, bringing a speculative element into the hedging process. Mark-to-market accounting for derivatives, hedge accounting rules and related disclosures make hedging strategies more transparent to outsiders. In this sense, IAS 39 and SFAS 133 shed more light on the speculative element of firms' hedging strategies. We therefore expect selective hedgers to be more likely to be affected by the accounting rules (see Lins *et al.* 2010 for a similar line of argument).

5. Sample, survey method and descriptive findings

5.1 *Sample selection and questionnaire survey methodology*

Our study is based on a survey conducted in the winter of 2007–2008. The questionnaire was sent to 583 stock-listed non-financial corporations in Germany and Switzerland, all of which apply IFRS. Of these companies 117, or 20.1%, replied, a relatively high response rate for this type of research.[12] Three questionnaires were returned anonymously, so that our final sample is made up of 114 companies. Table 1 illustrates the sample distribution over the two countries and stock exchange indices. It can be seen that the response rate correlates with the size and the listing status of the companies. We contacted some non-participating companies and enquired about their reasons for not taking part. Besides the well-known reasons of increased numbers of surveys and time constraints on responsible executives, smaller companies in particular indicated that hedging of financial risks and therefore hedge accounting is of relatively little interest to them.

The questionnaire comprised 29 questions and was organised in six sections: financial risk management, accounting for hedging relationships (hedge accounting), effectiveness tests, interaction between hedge accounting and financial hedging, the fair value option and general information. Before sending out the questionnaire, we discussed it with experts from an international audit firm and pre-tested it with representatives from three stock-listed corporations of different sizes to ensure that all questions would be understood and interpreted correctly. The questionnaire was then mailed to the chief financial officers of the companies. Approximately four weeks later, a second letter was sent to companies that had not yet responded. In a further round, telephone calls were made to encourage the participation of companies that had still not responded.

Table 1. Response rate arranged by country and stock exchange index.

Index/country	Companies surveyed	Surveys received	Response rate (%)
DAX	22	17	77.3
MDAX	39	18	46.2
SDAX	34	11	32.4
TecDAX	24	6	25.0
No selection index	339	41	12.1
Anonymous	–	1	–
Germany	458	94	20.5
SPI large	10	5	50.0
SPI middle	51	8	15.7
SPI small	64	8	12.5
Anonymous	–	2	–
Switzerland	125	23	18.4
Total	**583**	**117**	**20.1**

Notes: Our total sample consists of the companies included in the German CDAX and the Swiss SPI. The CDAX includes all German companies admitted to the Prime Standard and General Standard segments of the Frankfurt Stock Exchange. The Swiss SPI comprises all companies with primary listings on the SIX Swiss Exchange.

We excluded all financial institutions as well as companies that did not apply IFRS at the time of the survey. DAX = 30 largest and most actively traded German companies; MDAX = 50 mid-cap companies from traditional sectors in Germany; SDAX = next 50 companies from traditional sectors in Germany; TecDAX = 30 largest and most liquid companies from various technology sectors in Germany; SPI large = 20 largest and most liquid Swiss companies (equal to Swiss Market Index, SMI); SPI middle = next 80 Swiss companies; SPI small: remaining Swiss companies.

The questionnaires were filled out almost exclusively by representatives from companies' treasury and accounting departments, most of them managers or senior managers with responsibility for these departments. Most participants indicated that they had dealt with hedging and hedge accounting for more than three years.

5.2 *Descriptive findings: companies' financial risk management objectives and practices*

The findings from our questionnaire survey with regard to companies' approaches to financial risk management can be summarised as follows.[13] The most important type of financial risk for our sample companies is foreign exchange risk, followed by interest rate risk. Commodity price risk comes third, and its importance predictably depends strongly on the sector in which the company operates. The survey participants indicated that reducing earnings volatility is the most important objective of their companies' financial risk management. Reducing cash flow volatility, which takes priority from a financial theory perspective, is seen as the second most important objective. For most companies, increasing profitability is not a primary objective of their financial risk management.

Most companies use derivatives to hedge financial risks, above all in foreign currency and interest rate management. Approaches to managing risk exposures differ widely, not only across companies but also within individual companies across the different types of financial risk. As far as foreign exchange risk is concerned, about 10% of our sample companies do not manage their positions at all. These companies are mostly small and have only limited cross-border operations. About 40% of all companies follow fixed hedging rules according to which they always hedge exposures completely or according to certain formulas.[14] About half of all companies hedge selectively: they hedge only foreign currency positions for which they expect a loss and leave open positions for which they expect a gain. Only very few companies indicate that they actively trade in the foreign exchange markets, i.e. that they are willing to create exchange exposure beyond that arising from their business activities in order to profit from exchange rate movements. As regards interest rate risk, relatively more companies (about 20%) do not hedge their exposures, and a correspondingly lower number of companies follow fixed, rule-bound hedging strategies. About a third of all companies indicate that they do not hedge commodity price risks. However, in accordance with the responses assessing the importance of different types of financial risk, the hedging strategies for commodity price risks are strongly industry-dependent.

Finally, our findings indicate that financial risk management in most companies is highly centralised. This holds in particular for foreign exchange and interest rate risk management. In comparison, the management of commodity price risks is somewhat more decentralised. In many companies, local purchasing or sales departments are responsible for managing commodity price risks. In contrast, hedging foreign exchange and interest rate risks is mostly the responsibility of the central treasury department at group headquarters, which has specialised systems and know how, and can manage the risks on the basis of company-wide net exposures.

5.3 *Dependent variables*

The dependent variables in the following analyses are binary variables that indicate, first, whether companies do or do not apply hedge accounting and, second, whether IAS 39 hedge accounting rules do or do not influence their hedging behaviour. The data for the dependent variables are from our survey. Nine mostly smaller companies out of the total sample of 114 companies indicated that they do not use derivatives to hedge foreign currency risk, interest rate risk or commodity price risk. We asked the remaining 105 companies whether they apply hedge accounting. Seventy-six companies indicated that they use hedge accounting for at least some of their hedging relationships (72%). The remaining 29 companies (28%) indicated that they had decided not to apply hedge accounting.

Second, we asked respondents which of the following three statements best describes the situation in their company:

(a) *The accounting for the hedging relationships in the consolidated financial statement has no influence on our hedging behaviour.* The decision to enter into a hedging transaction is based solely on economic necessity.
(b) *The accounting influences our hedging behaviour.* The accounting treatment in the consolidated financial statement is taken into account as one of several factors when we decide whether to enter into a hedging transaction.
(c) *The accounting for the hedging relationships in the consolidated financial statement determines our hedging behaviour.* Hedging transactions are conducted only when the desired accounting treatment is possible.

The question was addressed only to those 76 companies that indicated that they use hedge accounting. Of these companies, 34 (45%) indicated that the accounting has no influence on their financial hedging; 32 (42%) indicated that the accounting rules have some influence on their hedging; and 10 (13%) responded that the accounting determines their hedging behaviour. Because of the small overall sample size and the relatively small number of companies whose risk management is determined by the accounting, we combined the second and third groups. Our second dependent variable is therefore also a binary variable. The answers to the above question do not specify how companies' hedging behaviour is altered by the hedge accounting rules.

However, we can generally infer that the accounting rules tend to reduce the level of hedging. This holds true at least for those companies which indicated that the accounting rules fully determine their hedging behaviour.[15]

5.4 *Independent variables*

Summary statistics on the independent variables are presented in Table 2. We use Datastream for data on company size, leverage, ownership structure, growth opportunities and type of auditor. Data for other variables are calculated on the basis of the survey results as such information is not publicly available. Companies were asked to indicate the relevance of exchange rate risks, interest rate risks and commodity price risks on a scale from 1 to 5, where 1 means 'not relevant' and 5 signifies 'very relevant'. We added the values for the three individual financial risks to calculate the relevance of financial risks in general. The mean value of 9.75 signals that participants generally consider financial risks to be quite relevant for their companies. A similar procedure was used to calculate an index for the intensity with which companies make use of derivatives for hedging purposes. Here, the scale ranges from 1 to 3 for each of the three kinds of risk; 1 indicates that the company 'never' uses derivatives to hedge this particular financial risk, while 3 indicates that the company 'regularly' uses derivatives to hedge this risk. We added the values to calculate an index for the overall frequency of the use of derivatives for hedging purposes. The average of 6.63 indicates that our sample companies on average use derivatives for financial hedging relatively frequently.

To minimise the influence of extreme values, we measure company size using the natural logarithm of total assets. To proxy for companies' experience of IFRS, we use the number of years since the first application of IFRS for consolidated financial statements as indicated in the

Table 2. Independent variables: descriptive statistics.

	Mean	Median	SD	N	Low	High
Relevance of financial risks	9.75	10.00	2.49	105	5.00	15.00
Use of derivatives	6.63	7.00	1.50	105	4.00	9.00
Company size	14.15	13.93	2.31	105	9.43	19.27
Experience with IFRS	4.77	6.00	1.71	105	1.00	6.00
Importance of reduced earnings volatility	3.90	4.00	0.94	105	1.00	5.00
Leverage	19.07	16.80	14.15	105	0.00	62.10
Free float	63.80	70.00	30.23	105	1.00	100.00
Book-to-market ratio	0.53	0.44	0.32	105	0.04	1.98
Big 4 auditor	0.83	1.00	0.38	105	0.00	1.00
Selective hedging strategy	0.70	1.00	0.46	105	0.00	1.00

Notes: All companies included in the analysis use derivative financial instruments to manage foreign exchange risk and/or interest rate risk and/or commodity price risk. *Relevance of financial risks* (scale 3 to 15) is calculated from survey results concerning the importance of exchange rate risks, interest rate risks and commodity price risks. The *use of derivatives* (scale 3 to 9) represents the frequency with which companies use derivatives for hedging purposes. It was calculated from survey results concerning the use of derivatives to hedge exchange rate risks, interest rate risks and commodity price risks. *Company size* is measured as the natural logarithm of total assets. *Experience with IFRS* is measured as the number of years since the first-time application of IFRS as indicated in the survey. The *importance of reduced earnings volatility* as a goal of financial management is based on survey results (scale 1 to 5). *Leverage* is measured by the ratio of total financial debt divided by total assets. *Free float*, as an indicator of companies' shareholder concentration, is the percentage of equity capital traded freely on the stock exchange. The *book-to-market* variable proxies for companies' growth opportunities. *Big 4 auditor* is an indicator variable equal to one if the company's financial statements are audited by a Big 4 auditor and zero otherwise. The data on leverage, free float, book-to-market ratio and Big 4 auditor are from Datastream. *Selective hedging strategy* is an indicator variable equal to one if the company follows a selective hedging strategy; the information is based on survey results.

questionnaire survey. The mean of 4.77 indicates that the average sample company was already quite familiar with the application of IFRS at the time of the survey. The importance of reducing earnings volatility as a goal for companies' financial management is again taken from our survey. The scale on this item ranged from 1 (not important) to 5 (very important). In line with findings from other surveys (Graham *et al.* 2005), our sample companies attach great importance to this goal, as is shown by the average score of 3.90.

In accordance with previous research, we proxy the relevance of the expected costs of financial distress by the company's leverage ratio, as measured by the ratio of total financial debt to total assets, a common financial ratio covenant in debt contracts (Demerjian and Ross 2007; similar operationalisations of leverage are used by Zhang 2008 and Hong *et al.* 2009). The average leverage of our sample companies is moderate, with a mean of 19%. Shareholder concentration is proxied by the percentage of equity capital that is traded freely on the stock exchange (free float). Free float is 64% on average. We measure companies' growth opportunities by their book-to-market ratios. Growth companies generally have a low book-to-market ratio, as growth opportunities tend to be priced in the stock market but are not reflected on the balance sheet. On average, the book value of equity represents 53% of our sample companies' market capitalisation. Eighty-three per cent of our sample companies are audited by a Big 4 auditor. The information on companies' hedging strategies is drawn from our survey. Seventy per cent of participating companies indicated that they hedge selectively for at least one of the three financial risks. This finding echoes findings of earlier survey studies on this topic (Greenwich Treasury Advisors 1999, Bodnar and Gebhardt 1999, Glaum 2002, Géczy *et al.* 2007).

Table 3 presents information on the bivariate correlations between independent variables. As we expected, the bivariate correlations between company size, the relevance of financial risks and the use of derivatives are relatively high, with Spearman rank correlation coefficients ranging from 0.460 (size, relevance of financial risks) to 0.643 (relevance of financial risks, derivatives usage). The other correlations are generally modest. In our regression analysis, we control for the possible influence of multicollinearity by inspecting variance inflation factors (VIF). In order to take into account that company size, relevance of financial risks and use of derivatives are conceptually related and correlated to each other, in addition to our fully specified models we also run separate regression models in which we enter only one of these variables.

6. Empirical results

6.1 *Application of hedge accounting*

6.1.1 *Univariate analysis*

In the univariate analysis, we divide our sample into two sub-samples: companies that apply hedge accounting and those that do not. Table 4 reports the mean, the standard deviation (SD) and the number of cases of the independent variables for users and non-users of hedge accounting. In the last two columns, we present the results of the nonparametric Mann–Whitney U-tests for differences in the two sub-samples.

According to the results, financial risks are of greater relevance for users of hedge accounting.[16] Companies that apply hedge accounting also use derivatives more frequently for hedging purposes, are larger and are more experienced with IFRS than companies that do not. Companies that apply hedge accounting also attach more weight to the goal of reducing earnings volatility. All of these differences are highly significant. We also find a significant difference with regard to companies' auditors (at the 10% level). Companies that apply hedge accounting are likelier to be clients of Big 4 auditing firms than companies that do not. This could indicate that the knowledge and experience of the international auditing firms is conducive to the application of

Table 3. Correlation matrix for independent variables.

	Relevance of financial risks	Use of derivatives	Company size	Experience with IFRS	Importance of reduced earnings volatility	Leverage	Free float	Book-to-market ratio	Big 4 auditor	Selective hedging strategy
Relevance of financial risks		0.521**	0.340**	−0.021	0.226**	0.141*	0.083	0.075	0.216*	0.060
Use of derivatives	0.643**		0.448**	0.050	0.148	0.170*	0.047	0.050	0.216*	−0.069
Company size	0.460**	0.595**		0.200**	0.203**	0.261**	0.136*	−0.072	0.281**	−0.065
Experience with IFRS	−0.026	0.057	0.249*		−0.029	0.044	0.045	−0.015	0.011	−0.108
Importance of reduced earnings volatility	0.276**	0.184	0.272**	−0.034		0.094	0.079	−0.086	−0.012	0.042
Leverage	0.196*	0.230*	0.383**	0.053	0.122		0.012	−0.024	0.032	−0.046
Free float	0.113	0.071	0.204*	0.057	0.097	0.009		0.000	0.169*	0.163*
Book-to-market ratio	0.101	0.063	−0.117	−0.022	−0.118	−0.033	−0.004		−0.004	−0.035
Big 4 auditor	0.249*	0.243*	0.343**	0.012	−0.013	0.039	0.202*	−0.005		0.038
Selective hedging strategy	0.070	−0.078	−0.079	−0.116	0.045	−0.056	0.195*	−0.043	0.038	

Notes: **significant at the 1% level (two-tailed); *significant at the 5% level (two-tailed). Kendall-Tau-b coefficients are shown at the upper right; Spearman rank correlations at the lower left. It should be noted that two of our variables are dichotomous (auditor and hedging policy) and that correlation coefficients based on dichotomous variables have to be interpreted with care. In particular, correlation coefficients based on dichotomous variables are not necessarily symmetrical around zero, and their sign is irrelevant, because it is determined by the coding of the dummy variable. All companies included in the analysis use derivative financial instruments to manage foreign exchange risk and/or interest rate risk and/or commodity price risk. For a definition of the independent variables, see Table 2.

Table 4. Application of hedge accounting: univariate tests.

		Application of hedge accounting			No application of hedge accounting			Mann–Whitney U-test	
Explanatory variable	H	Mean	SD	*N*	Mean	SD	*N*	Z	*p*-value
Relevance of financial risks	+	10.17	2.41	76	8.66	2.38	29	2.691	*0.007*
Use of derivatives	+	7.00	1.41	76	5.66	1.29	29	4.064	*0.000*
Company size	+	14.82	2.23	76	12.39	1.46	29	4.809	*0.000*
Experience with IFRS	+	5.01	1.58	76	4.14	1.92	29	2.067	*0.038*
Importance of reduced earnings volatility	+	4.08	0.94	76	3.45	0.78	29	3.433	*0.000*
Leverage	+	20.15	14.39	76	16.23	13.34	29	1.197	*0.233*
Free float	+	64.86	30.98	76	61.03	28.50	29	0.687	*0.495*
Book-to-market ratio	–	0.55	0.33	76	0.47	0.28	29	1.089	*0.279*
Big 4 auditor	?	0.87	0.34	76	0.72	0.46	29	1.746	*0.090*

Notes: All companies included in the analysis use derivative financial instruments to manage foreign exchange risk and/or interest rate risk and/or commodity price risk. For a definition of the independent variables, see Table 2.

hedge accounting in non-financial corporations. However, we must be aware that our independent variables are correlated with each other. In particular, clients of Big 4 auditing firms tend to be larger than clients of other, smaller auditors. Thus, an assessment of the role of the auditor should be based on the multivariate analysis, discussed below. The univariate results do not indicate a significant difference between the growth opportunities of users and non-users of hedge accounting as reflected by their book-to-market ratio. There also do not seem to be significant differences concerning leverage or ownership structures (free float).

6.1.2 *Multivariate analysis*

Univariate tests do not control for interactions between the independent variables. In the following analysis we apply multivariate logistic regression to test for significant differences in each of the variables, holding all other attributes constant. Logistic regression can be used to predict the presence or absence of an outcome or, more precisely, the likelihood of an event occurring, given a set of predictors (the binary choice model). Like linear regression, the model can be used in reverse to test whether proposed predictors do indeed help to explain the observed distribution of outcomes (Menard 2001, Miles and Shevlin 2001, Chatterjee and Hadi 2006).

Our dependent variable is a binary variable that is equal to 1 for users of hedge accounting and 0 for non-users. Because of our limited sample size and in order to avoid the problem of model over-specification, we include in the multivariate analysis only those explanatory variables that have a p-value <0.40 in the univariate analysis (Hosmer and Lemeshow 2000). Therefore free float is not considered in the following discussion. In order to improve the reliability of our test results, we analyse preliminary estimation results for influential cases and outliers, using Cook's distance and inspection of standardised residuals (Menard 2001, Stevens 2002). The tests do not indicate that estimations are unduly affected.

In Table 5 we present estimation results for four alternative specifications of our model. As was discussed above, three of our independent variables – the relevance of financial risks, the use of derivatives and company size – are theoretically related to each other, and relatively high bivariate correlations exist between them. Therefore, in the first three models we run three regressions, each of which comprises only one of these variables. Model 4 is the fully specified model that includes all explanatory variables that satisfy the threshold of $p < 0.40$ in the univariate analysis.

Table 5. Application of hedge accounting: logistic regression.

Explanatory variable	H		Model 1	Model 2	Model 3	Model 4
Constant		coefficient	−8.108	−10.288	−14.897	−15.257
		p-value	*0.000*	*0.000*	*0.000*	*0.000*
Relevance of financial risks	+	coefficient	0.182			−0.105
		p-value	*0.119*			*0.539*
Use of derivatives	+	coefficient		0.674		0.475
		p-value		*0.002*		*0.102*
Company size	+	coefficient			0.744	0.612
		p-value			*0.001*	*0.008*
Experience with IFRS	+	coefficient	0.402	0.377	0.279	0.296
		p-value	*0.006*	*0.013*	*0.078*	*0.068*
Importance of reduced earnings volatility	+	coefficient	0.899	0.885	0.843	0.848
		p-value	*0.003*	*0.003*	*0.008*	*0.010*
Leverage	+	coefficient	0.014	0.007	−0.014	−0.015
		p-value	*0.453*	*0.721*	*0.516*	*0.515*
Book-to-market ratio	−	coefficient	1.890	2.186	2.451	2.574
		p-value	*0.040*	*0.021*	*0.016*	*0.014*
Big 4 auditor	?	coefficient	1.176	0.911	0.546	0.514
		p-value	*0.073*	*0.175*	*0.439*	*0.484*
Overall fit						
McFadden R^2			0.230	0.303	0.353	0.377
Nagelkerke R^2			0.343	0.433	0.492	0.518
Likelihood ratio test			28.430	37.452	43.677	46.659
			(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
Hosmer–Lemeshow test			0.336	0.927	0.928	0.777
Classification rate			76.2	81.0	80.0	83.8
N			105	105	105	105

Notes: The dependent variable is equal to one if a company applies hedge accounting and zero otherwise. All companies included in the analysis use derivative financial instruments to manage foreign exchange risk and/or interest rate risk and/or commodity price risk. For a definition of the independent variables, see Table 2.

For each explanatory variable, we present the regression coefficient and the *p*-value of the Wald statistic. In the lower part of the table, we give information on the overall fit of the logistic regression models. The summary statistics suggest that the models are relatively well specified. The Nagelkerke R^2 values are between 34.3 and 51.8%, and the likelihood ratio test indicates that the independent variables make significantly better predictions about the application of hedge accounting than pure chance. According to the likelihood ratio test, the fully specified Model 4 has the best goodness-of-fit. This is also verified by the classification rate: Model 4 predicts correctly in 84% of all cases whether a company applies hedge accounting or not. Compared to a 'chance hit rate' of 72%,[17] our model increases the percentage of correctly classified cases by more than 15%. The overall model fit is affirmed by the Hosmer–Lemeshow test, which remains insignificant for all model specifications, indicating that the model predictions are not significantly different from the observed values.

Turning to the individual explanatory variables, in all four model specifications we find significant effects for experience with IFRS. Thus, companies that are more experienced in the application of IFRS are more likely to adopt IAS 39 hedge accounting. This suggests that a learning effect exists and companies may take a step-by-step approach to mastering the complexity of the rules; thus the IASB plan to simplify hedge accounting requirements may be an appropriate way to extend the application of hedge accounting in non-financial companies.

As we expected, the perceived importance of reduced earnings volatility increases the likelihood of companies' applying hedge accounting. Furthermore, the book-to-market variable is significant at the 5% level, suggesting that growth opportunities influence the use of hedge accounting. However, while we had expected a negative correlation between book-to-market ratio and the likelihood of the application of hedge accounting, the coefficient on the variable turns out to be positive. Thus, it appears that growth companies are actually less likely to apply hedge accounting than companies in more mature markets. One reason for this could be that growth companies would rather invest directly in business growth than in accounting systems and accounting experts that are needed to implement hedge accounting. Moreover, for companies with pronounced growth opportunities, current earnings may not be of central importance for investors, so that the potential benefits of hedge accounting and smoothed earnings may be reduced.[18]

When entered individually in Models 2 and 3, respectively, the use of derivatives and company size prove to be highly significant. The relevance of financial risks is not statistically significant in Model 1 at conventional levels (p-value = 0.119). In Model 4, which comprises all three variables, company size again emerges as statistically significant, while the p-value for use of derivatives falls marginally short of the 10% threshold ($p = 0.102$). Overall, these findings are in line with our reasoning that especially large companies with well-established accounting systems can amortise the costs of applying the complicated hedge accounting rules relatively well.

Finally, in Model 1 the Big 4 auditor variable is significant, and it comes relatively close to conventional significance levels in Model 2. However, it is not significant in Model 3, which includes company size, nor in the fully specified Model 4. We therefore believe that, in the univariate test as well as in Model 1 and to some extent in Model 2, the auditor variable proxies for company size. Once size is controlled for, the auditor does not appear to have a significant impact on companies' decisions whether or not to apply hedge accounting. The two opposing forces that are associated with Big 4 audits – namely, stricter interpretation of IAS 39 rules, on the one hand, and technical expertise provided by these large international audit firms, on the other – may offset each other. Finally, financial leverage does not exert a significant influence in any of the four model specifications.

The coefficients of a logistic regression can be interpreted as the change in the log odds (logit) associated with a one-unit change in the independent variable (Hosmer and Lemeshow 2000). Since this is not intuitive, we illustrate the economic significance of our findings in Table 6. Here, starting from a base scenario where all independent variables are set to their mean values, we document how the likelihood of companies applying hedge accounting changes if the values for the individual explanatory variables are increased by one standard deviation, holding all other variables constant. One of our independent variables (Big 4 auditor) is an indicator variable. Hence, we distinguish two base scenarios; one presented in the first row of Table 6, where Big 4 auditor is set to one, and a second scenario where Big 4 auditor is set to zero. The illustration is based on estimation results for the fully specified Model 4. Depending on whether a company is audited by a Big 4 auditor or not, the probability of hedge accounting being applied in the base scenarios is 86 and 79%, respectively. The subsequent columns of the table show how these probabilities change as each of the non-dichotomous explanatory variables is increased by one standard deviation, holding all other variables constant. The results show that the explanatory variables that are statistically significant also have an economically meaningful effect on the likelihood that hedge accounting will be applied. For example, an increase in company size by one standard deviation increases the probability of a firm's applying hedge accounting by 10% if it is audited by a Big 4 company and by 15% if it is audited by a

Table 6. Application of hedge accounting: economic significance of logistic regression results (based on Model 4).

		Change in probability for the application of hedge accounting if the specified explanatory variable is increased by one standard deviation, holding all other variables constant						
	Base case probability for the application of hedge accounting (%)	Relevance of financial risks (%)	Use of derivatives (%)	Company size (%)	Experience with IFRS (%)	Importance of reduced earnings volatility (%)	Leverage (%)	Book-to-market ratio (%)
Big 4 auditor	86.34	−3.38	+6.45	+9.96	+4.97	+6.99	−2.70	+7.18
Non-Big 4 auditor	79.08	−4.65	+9.41	+14.89%	+7.19	+10.24	−3.73	+10.53%

Notes: The numbers in the base case scenarios represent the likelihood that hedge accounting will be applied when the independent variables are equal to their mean values. In the first row, the indicator variable for the auditor is set to one; in the second row, it is set to zero. The following columns show the marginal effect on the probability for the application of hedge accounting if the specified explanatory variable is increased by one standard deviation. All companies included in the analysis use derivative financial instruments to manage foreign exchange risk and/or interest rate risk and/or commodity price risk. For a definition of the independent variables, see Table 2.

non-Big 4 auditor. The smaller increase in the case of a Big 4 auditor is the result of a higher probability in the base case.

6.1.3 *Robustness tests*

We conduct several tests to examine whether the results presented in the preceding section are robust. In order to control for multicollinearity, we inspect variance inflation factors (VIF) for the independent variables in our models. As expected, we find the highest VIFs in the fully specified Model 4 for the relevance of financial risks, use of derivatives and company size variables, which are relatively highly correlated with each other. However, with VIFs of 1.91, 2.08 and 2.13, respectively, for the three variables, multicollinearity is not an issue for the regressions.

In further tests, we change the specification of our model. These tests are based on our reference Model 4. We first include in Model 4 the free float explanatory variable, which was excluded from the multivariate analysis because of insignificant univariate results. With the inclusion of this variable, which proxies for shareholder concentration, the results remain unaltered. Relevance of financial risks is a composite variable that combines the relevance of foreign exchange, interest rate and commodity price risks. Our results remain qualitatively unchanged if we replace the composite variable with the individual risk assessments for foreign exchange risk and commodity price risks and run the model again. Interest rate risk, however, is significantly associated with the company's propensity to apply hedge accounting. Hedging of interest rate risks in practice is often related to large individual financing transactions for which the application of hedge accounting may be of particular importance.

Our sample comprises companies from Germany and Switzerland. Research indicates that the enforcement of accounting standards and investor protection determine the quality of financial reporting at least as strongly as the quality of the standards (e.g. Hope 2003, Leuz *et al.* 2003, Daske *et al.* 2009). These institutional factors are quite similar in Germany and Switzerland (see La Porta *et al.* 1998, 2006). However, in order to ensure that our results are not unduly influenced by country-specific circumstances, we include in our model an indicator variable for the company's country of origin and run the estimation again. The country dummy is not significant and its inclusion in the model has only minor effects on the results. Experience with IFRS, which in Model 4 is significant at the 10% level ($p = 0.068$), now falls below the 10% threshold ($p = 0.135$), and the use of derivatives, which was only marginally significant at $p = 0.102$ in Model 4, now emerges as significant at the 10% level ($p = 0.068$).

In a next step, we also include industry indicator variables in Model 4 to analyse whether our results are driven by sector differences. Bartram *et al.* (2009) show that companies from the utility and chemicals industries use derivatives for hedging purposes more often than companies from the consumer goods industry. Our results for the application of hedge accounting do not change if sector dummies are included in our model. The dummies themselves are not significant.

Finally, in our main regressions we employ the natural logarithm of total assets to proxy for company size and we use the ratio of total financial debt to total assets (leverage) to proxy for the expected costs of financial distress. Other variables may also be used to proxy for these factors. We alternatively use the natural logarithm of net sales instead of the natural logarithm of total assets, and we replace the ratio of financial debt to total assets with the ratio of total liabilities (i.e. financial debt and provisions) to total assets, the quick ratio and the interest coverage, alternatively. In general, the results are not sensitive to these changes in the explanatory variables, except for the variable use of derivatives, which is only marginally significant in Model 4 and emerges as statistically significant at the 5% level in all of the altered model specifications.

6.2 *Influence of IAS 39 hedge accounting on financial hedging*

6.2.1 *Univariate analysis*

We now turn to our second main research question, that of whether IAS 39 hedge accounting influences companies' risk management. In the following analyses we consider only responses from the 76 companies that actually do apply hedge accounting. The small sample size reduces the power of statistical tests and makes it more difficult to obtain significant results. In addition, small samples are sensitive to atypical observations. We therefore again analyse preliminary estimation results for the multivariate logistic regression for influential cases and outliers. Cook's distance and inspection of standardised residuals (Menard 2001, Stevens 2002) identifies four cases as atypical for the sample.[19] Elimination of these cases reduces our sample size to 72 observations in the following analysis. Results based on the total sample of 76 cases are discussed in section 6.2.3 on robustness tests.

For the univariate analysis we divide our sample into two groups, the 41 companies that indicated that their hedging behaviour is influenced by IAS 39 hedge accounting rules and the remaining 31 companies. In Table 7 we present descriptive statistics for the two sub-samples and the results of the Mann–Whitney U-tests. We find significant differences with regard to the use of derivatives, company size, leverage, free float, book-to-market ratio and selective hedging. However, it is noteworthy that the differences in Table 7 are significant at the 5% level, at best. In other words, the strength of the test results is generally lower if compared to the earlier results on the application of hedge accounting (see Table 4). For all but one of the variables mentioned above, the direction of the effects corresponds to our expectations. Again, the exception is the book-to-market variable. Contrary to our hypothesis, companies whose hedging behaviour is influenced by IAS 39 hedging regulations have lower growth opportunities as measured by book-to-market ratio than companies whose risk management is not influenced. The reason could be that growth companies are primarily concerned about the economic effectiveness of their hedging so as to ensure the financing of future investments (Froot *et al.* 1993). The potential volatility of earnings if hedge accounting cannot be applied may be of lesser importance.

The relevance of financial risks does not appear to be directly related to the impact of IAS 39 on companies' hedging behaviour, even though it is closely related to the use of derivatives, which seems to be an important determinant. As regards experience with IFRS, we do find a

Table 7. Impact of hedge accounting on financial hedging: univariate tests.

		Influence on financial hedging			No influence on financial hedging			Mann–Whitney U-test	
Explanatory variable	H	Mean	SD	*N*	Mean	SD	*N*	*Z*	*p*-value
Relevance of financial risks	–	10.24	2.41	41	10.13	2.57	31	0.270	*0.791*
Use of derivatives	–	6.76	1.30	41	7.39	1.38	31	2.013	*0.044*
Company size	–	14.49	2.20	41	15.36	2.16	31	1.677	*0.095*
Experience with IFRS	–	4.85	1.62	41	5.16	1.51	31	0.955	*0.346*
Importance of reduced earnings volatility	+	4.10	1.04	41	4.00	0.82	31	0.859	*0.398*
Leverage	+	23.44	15.41	41	16.77	12.52	31	1.791	*0.074*
Free float	+	69.09	27.03	41	54.94	34.25	31	1.748	*0.081*
Book-to-market ratio	–	0.62	0.39	41	0.44	0.20	31	2.007	*0.045*
Big 4 auditor	?	0.83	0.39	41	0.90	0.30	31	0.933	*0.496*
Selective hedging strategy	+	0.73	0.45	41	0.48	0.51	31	2.136	*0.049*

Notes: In this analysis we include only companies that apply hedge accounting according to IAS 39. For a definition of the independent variables, see Table 2.

small difference in the mean number of years since the introduction of IFRS that has the expected sign. The lack of statistical significance may result from the fact that this analysis considers only companies that apply hedge accounting. These companies generally tend to be seasoned IFRS users, with an average of five years since the introduction of IFRS across all 72 companies. The low variance in combination with the small sample size may prevent us from finding a statistically significant difference.

Our univariate results do not support the finding of Lins *et al.* (2010) that affected companies regard reducing earnings volatility as a major goal of financial risk management. The explanation may be analogous to that for experience in the application of IFRS. Because the goal of reducing earnings volatility helps to differentiate between companies that apply hedge accounting and those that do not, basically all companies that apply hedge accounting tend to regard reducing earnings volatility as an important goal (overall mean: 4.06). The auditor variable is also insignificant, and this may again be a consequence of the countervailing effects associated with being audited by a Big 4 auditor (stricter interpretation of rules versus technical expertise and support).

6.2.2 *Multivariate analysis*

As with the earlier regression on the application of hedge accounting, we consider in the multivariate analysis only explanatory variables that are significant at least at the 0.40 level in the univariate analysis (Hosmer and Lemeshow 2000). Therefore only eight of the 10 variables are included. In Table 8 we present results of three alternative logistic regression models. Given that the use of derivatives and company size are correlated, we include them separately in Models 1 and 2, respectively. Model 3 is the fully specified model that includes both variables.

The goodness-of-fit criteria show a satisfactory overall fit of the regression models, especially in light of the relatively small sample size. The Nagelkerke R^2 values are between 45.2 and 49.9%, and the likelihood ratio test is highly significant at $p < 0.001$. The highest likelihood ratio test value is for the fully specified Model 3. The hit rates of Model 3 are 88% for the affected companies and 71% among the non-affected companies. Although the value of the Hosmer–Lemeshow test is relatively low for Model 3, it remains insignificant, suggesting a satisfactory model fit.

With regard to the individual explanatory variables, the estimations of the multivariate regressions confirm the univariate results, i.e. variables that were (not) significant in the univariate analysis are also (not) significant in the multivariate logistic regression. The use of derivatives and company size both have the predicted negative impact, both individually in Models 1 and 2 and when they are jointly considered in Model 3. This is consistent with our expectation that larger companies and companies that regularly use derivatives have developed systems and routines that allow them to apply hedge accounting without compromising their optimal hedging strategies. Furthermore, closer scrutiny of larger companies by investors and analysts may prevent them from making decisions that are influenced by accounting considerations and deviate from sound risk management principles.

As we predicted, higher leverage and free float increase the likelihood that the accounting rules will affect hedging behaviour. The result with regard to shareholder structures corresponds with similar findings of Lins *et al.* (2010). Our findings further suggest that companies that hedge selectively are more likely to allow accounting rules to affect their hedging behaviour. The greater transparency of IAS 39 may provide an incentive for the management of these companies to bear in mind the accounting consequences of their profit-orientated, partly speculative risk management practices. Finally, as in the univariate analysis, contrary to our expectations companies with more growth opportunities are less likely to be affected by IAS 39.

Table 8. Impact of hedge accounting on financial hedging: logistic regressions.

Explanatory *variable*	H		Model 1	Model 2	Model 3
Constant		coefficient	0.110	1.132	2.282
		p-value	*0.997*	*0.669*	*0.418*
Use of derivatives	–	coefficient	−0.777		−0.565
		p-value	*0.006*		*0.062*
Company size	–	coefficient		−0.521	−0.378
		p-value		*0.006*	*0.067*
Experience with IFRS	–	coefficient	−0.060	0.043	0.040
		p-value	*0.775*	*0.832*	*0.852*
Importance of reduced earnings volatility	+	coefficient	0.118	0.237	0.220
		p-value	*0.710*	*0.465*	*0.496*
Leverage	+	coefficient	0.078	0.086	0.100
		p-value	*0.006*	*0.006*	*0.004*
Free float	+	coefficient	0.019	0.025	0.027
		p-value	*0.094*	*0.036*	*0.031*
Book-to-market ratio	–	coefficient	3.728	2.875	3.427
		p-value	*0.016*	*0.043*	*0.037*
Selective hedging strategy	+	coefficient	1.505	1.591	1.674
		p-value	*0.029*	*0.019*	*0.020*
Overall fit					
McFadden R^2			0.303	0.300	0.340
Nagelkerke R^2			0.455	0.452	0.499
Likelihood ratio test			29.802	29.552	33.460
			(0.000)	*(0.000)*	*(0.000)*
Hosmer–Lemeshow test			0.808	0.431	0.251
Classification rate			76.4	73.6	80.6
N			72	72	72

Notes: In this analysis we include only companies that apply hedge accounting according to IAS 39. The dependent variable is equal to one if a company is influenced in its hedging behaviour by IAS 39 hedge accounting and zero otherwise. For a definition of the independent variables, see Table 2.

In Table 9 we again illustrate the economic significance of our findings, using the same approach as with the application of hedge accounting. Given that our model includes one dichotomous variable (selective hedging), in the first column we again present two base scenarios with all continuous variables set to their mean values. The base scenario in the upper row is for companies that hedge selectively; the one in the lower row is for companies that do not. In these scenarios, the probability that a company's risk management will be affected by IAS 39 hedge accounting rules is 75% for selective hedgers but only 36% for other firms. Changes in the other statistically significant explanatory variables also have economically meaningful consequences. Increasing the values of the remaining statistically significant variables by one standard deviation influences the likelihood of being affected by a minimum of 13% and a maximum of 35%.

6.2.3 *Robustness tests*

In order to analyse the robustness of our regression results, we again inspect variance inflation factors (VIFs) to test for the presence of multicollinearity. The highest VIF value in the three regression specifications is 1.854 (for company size in Model 3), which shows that multicollinearity again does not pose a problem.

Table 9. Impact of hedge accounting on hedging behaviour: economic significance of logistic regression results (based on Model 3).

		Change in probability for the influence of hedge accounting rules on hedging behaviour if specified explanatory variable is increased by one standard deviation holding all other variables constant						
	Base case probability for influence of accounting rules on hedging behaviour	Use of derivative (%)	Company size (%)	Experience with IFRS (%)	Importance of reduced earnings volatility (%)	Leverage (%)	Free float (%)	Book-to-market ratio (%)
Selective hedging strategy	74.66	−16.96	−18.54	1.17	3.74	17.98	12.51	15.57
No selective hedging strategy	35.59	−15.22	−16.25	1.45	4.91	34.67	20.43	27.81

Notes: The numbers in the base case scenarios represent the likelihood that a company's hedging behaviour will be influenced by IAS 39 hedge accounting rules when the independent variables are equal to their mean values. In the first row, the indicator variable for the application of selective hedging is set to one; in the second row, it is set to zero. The following columns show the marginal effect on the probability that the company's hedging behaviour will be influenced by IAS 39 hedge accounting rules if the specified explanatory variable is increased by one standard deviation. In this analysis we include only companies that apply hedge accounting according to IAS 39. For a definition of the independent variables, see Table 2.

As with the earlier analysis on the application of hedge accounting, we next change the specification of our reference model, i.e. Model 3. First, we include in the model those explanatory variables that were excluded because of their univariate results (relevance of financial risks and Big 4 auditor). The alternative model specification leaves our results qualitatively unchanged; the added explanatory variables remain insignificant. Once again, we also test whether our results are influenced by the companies' country of origin (Germany versus Switzerland); we find no such influence. We also include industry indicator variables and find that none of them is significant at conventional levels. However, as one might expect, the book-to-market ratio varies across industry sectors. Hence, when we include the industry variables in Model 3, some of the explanatory power of book-to-market ratio is absorbed by these additional variables. Nonetheless, our (unexpected) finding that companies with higher growth opportunities are less likely to be affected in their risk management by IAS 39 hedge accounting rules remains statistically significant.

Further tests document that our findings are not affected by changes in the operationalisation of the company size variable. The same does not hold for the operationalisation of financial distress, i.e. our leverage variable. If we replace ratio of financial debt to total assets with ratio of total debt to total assets or with the quick ratio or the interest coverage, company size falls below the 10% threshold.[20] Financial distress itself is not significant in any of the alternative model specifications. For the quick ratio ($p = 0.177$) and for the interest coverage ($p = 0.139$), the significance levels are still relatively close to the 10% level, especially in light of the small sample size. This is not so for the ratio of total liabilities to total assets, where the p-value drops to 0.446. This result may be a consequence of the large provisions for unfunded pensions that German companies, especially, have on their balance sheets. In Germany, companies are not required to fund their pension liabilities, and until recently tax and other regulations actually discriminated *against* external funding (Fasshauer and Glaum, 2009). Pension provisions are of a very long-term nature and are traditionally considered in Germany as a form of financing that has characteristics similar to those of equity (Gerke and Pellens 2003). Thus, we may be introducing noise into the regression estimations by incorporating pension provisions in the leverage variable.

As we explained above in section 5, because of the small overall sample size, in the main analysis we combine companies reporting that the hedge accounting rules influence their hedging behaviour with companies reporting that the rules fully determine their hedging behaviour. As another robustness test, setting aside our concerns about sample size, we disaggregate these groups and run our model as an ordered logistic regression where the dependent variable has three categories. The results largely confirm our earlier findings. The overall fit of the ordered regression model is acceptable; the McFadden R^2 value is 0.244 and the likelihood ratio test is significant. The use of derivatives, company size, leverage, free float and the selective hedging strategy remain significant. The only noteworthy difference from our main model is that book-to-market ratio now falls below the 10% threshold ($p = 0.103$).

Finally, in the main analysis we excluded four atypical observations from our sample. When we include these observations and run the regression for our main Model 3 with all 76 companies that apply hedge accounting, the fit of the model is markedly lower. The Nagelkerke R^2 is 33.2 % (compared to 49.9% without the four cases, see Table 8); the likelihood ratio test value is now 21.679 ($p = 0.006$) (against 33.46 without the four cases); and the classification rate is 75% (81% without the four cases). The only explanatory variable that now consistently emerges as highly significant in all model specifications is leverage. The other previously significant explanatory variables lose explanatory power and are now generally significant only at a 15% level. It follows that one must interpret the results regarding the influence of IAS 39 hedge accounting rules on companies' hedging behaviour with caution. Whether companies' risk management is affected by the hedge accounting rules may be determined by further, as yet unidentified variables that are not included in our model. On the other hand, we also have to bear in mind that small samples bias against finding significant results. Hence, excluding the four atypical cases reduces the risk of type-two errors, i.e. the risk of falsely rejecting the null hypothesis for some of the factors that may determine whether the restrictive IAS 39 hedge accounting rules affect companies' risk management.

7. Conclusions

Hedge accounting is a set of exceptions to normal accounting rules designed to synchronise the recognition of gains and losses from a hedged item and the hedging derivative in the firm's income statement, in order to avoid an unjustified appearance of earnings volatility across periods. IAS 39 and the very similar regulations of SFAS 133 under US GAAP allow the application of hedge accounting only under complex and highly restrictive conditions. As a result, some companies decide not to apply hedge accounting and accept the resulting earnings volatility. Other companies alter their risk management practices in order to ensure that hedge accounting can be applied.

Even though hedge accounting according to IAS 39 or SFAS 133 is highly controversial, empirical evidence on the application of the rules, or on the influence the rules have on companies' risk management, is scarce so far, presumably because of limited data availability. This paper is based on evidence from a survey study among stock-listed German and Swiss non-financial companies, all of which are subject to these rules under IFRS. More than 90% of the companies participating in the survey use derivatives to hedge financial risks. However, only 72% of those companies that hedge also apply hedge accounting. Companies for which the reduction of earnings volatility is a major goal of financial risk management, larger companies and companies that frequently use derivatives are more likely to apply hedge accounting, as are mature companies and those that are more experienced with IFRS. In general, our results suggest that the complexity of the rules hampers their application in non-financial corporations. Thus, the current efforts of the IASB and the FASB to reduce this complexity may widen the use of hedge accounting in the future.

Our survey results suggest that hedge accounting rules do indeed influence the hedging behaviour of many non-financial companies, and some even report that accounting fully determines it. It appears that, in order to ensure the application of hedge accounting, these companies accept a higher exposure to financial risks. This effect, however, is weaker for larger companies, companies that use derivatives frequently and companies with higher growth opportunities, while it is stronger for companies with higher leverage, those with more dispersed ownership and those that pursue selective, profit-orientated hedging policies.

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Notes

1. The second major controversial subject is, of course, fair value measurement for derivatives and other financial instruments (e.g. Walton 2004). It should be noted that the two issues, hedge accounting and fair value measurement, are not independent of each other. As we explain in more detail in later

sections of the paper, the need for hedge accounting arises partly because of the mixed measurement models that underlie IAS 39 and the US GAAP reporting standards on financial instruments.

2. The authors would like to thank PricewaterhouseCoopers Germany for their support in undertaking the survey.
3. Given the troubled history of financial instruments accounting, it comes as no surprise that the classification and measurement rules of IFRS 9 are controversial. Critics argue that the new rules will lead to a more extensive application of fair value measurement. In November 2009, the European Union announced that it would postpone its decision on the endorsement of IFRS 9 until all components of the IASB's new standard on financial instruments have been completed.
4. More concretely, the IASB intends to eliminate the distinction between financial and non-financial hedged items and to simplify the designation of net positions as hedged items. In addition, new rules are proposed for a more objective-based assessment of hedge effectiveness; hedge effectiveness will have to be assessed only prospectively, and current inflexible thresholds will be eliminated. Furthermore, the accounting model for fair value hedge accounting will be changed; in particular, to the extent that hedges are effective, all gains and losses will initially be reported in other comprehensive income. Finally, the Board plans to remove the option for companies to discontinue hedge accounting when effective hedging relationships continue to exist. For details, see IASB (2010).
5. For the sake of brevity, in this section we refer only to IAS 39. However, the rules for hedge accounting under SFAS 133 are very similar. For details, see Kieso *et al.* (2010, pp. 18, 884–897).
6. For hedges of foreign currency risks, IAS 39.72 exceptionally allows, in addition to derivatives, the designation of a non-derivative financial instrument as a hedging instrument.
7. See, for example, the commentaries by PwC (2005, p. 13) and Ernst & Young (2010, p. 2568) on this point.
8. We do not discuss a special form of hedge accounting under IAS 39, 'Fair Value Hedge Accounting for a Portfolio Hedge of Interest Rate Risk', since this is of little interest to non-financial companies. For details of this form of hedge accounting, see Deloitte (2009, pp. 1425–1434).
9. Gebhardt *et al.* (2004) develop a simulation model designed to represent universal banks, i.e. banks that combine commercial and investment banking activities. They analyse the implications of alternative hedge accounting rules and a full fair value model on the bank's financial statements. The authors conclude that, under the restrictive hedge accounting requirements of IAS 39 or SFAS 133, it is not possible for banks to depict their hedging behaviour adequately in their financial statements. They argue that only a full fair value model adequately reflects the economics of banking activities.
10. The positive relationship between size and the application of hedge accounting may be diluted by the greater information asymmetries between small companies and their investors (Leuz and Verrecchia 2000, Cormier *et al.* 2009). Because of the more intensive information asymmetries, small companies may have a stronger interest in avoiding earnings volatility. However, in general we expect a positive relationship between company size and the application of hedge accounting, as the cost effect of hedge accounting is more direct than the potential benefit of smoothed earnings.
11. There is also a benefit-related argument that explains why companies that frequently hedge with derivatives have a strong incentive to apply hedge accounting. Without hedge accounting, these companies are likely to experience high earnings volatility because the derivatives would have to be valued at fair value through profit and loss, while the hedged items would often be accounted for differently.
12. For example, the international survey conducted by Lins *et al.* (2010) obtained a response rate of about 9%.
13. For more details on the descriptive results, see Glaum and Klöcker (2009).
14. For example, some companies always hedge a third of their exposures with forwards, hedge a third with currency options and leave the remaining third open.
15. The assertion that hedge accounting tends to reduce the level of hedging is corroborated by another survey result. The participants of the survey were given a fictitious scenario in which a company was faced with a profitable investment opportunity. Financial risks inherent in the project could be hedged with a structured derivative. However, hedge accounting could not be applied to the planned hedge, so that substantial earnings volatility was expected to result from the use of the derivative. Participants were presented with alternative managerial reactions and asked which of those their company would most likely follow. According to the responses, only 29.7% of the companies would continue with the investment and the planned hedging of its associated financial risks, irrespective of the accounting problems. About half of the companies (47.3%) would undertake the investment and would use a plain vanilla instrument that would only partially hedge the financial risks but would qualify for hedge accounting. Another 14.9% of the companies would undertake the investment but

leave the related risks completely unhedged, and 8.1% would waive the whole investment opportunity. In general, these results are in line with the earlier findings of Graham *et al.* (2005). More specifically, they indicate that companies are willing to reduce the level of hedging, accept exposures to financial risks and sacrifice firm value if faced with restrictions on the application of hedge accounting.

16. This result is not driven by one particular type of financial risk. For all three financial risks, exchange rate, interest rate and commodity price risk, the relevance is higher for those companies that apply hedge accounting.
17. Of 105 firms in the regression, 76 apply hedge accounting. Thus if we predict that all firms apply hedge accounting, we get a hit rate of 72.3%. Model 4 correctly predicts which companies apply hedge accounting in a large majority of cases (92%), and it also identifies most companies that do not use hedge accounting (62%).
18. The estimator for the bivariate correlation between book-to-market ratio (growth) and the perceived importance of reduced earnings volatility is actually slightly negative (−0.118); see Table 3. This value, however, is not statistically significant.
19. One of the four companies is a large industrial company. Given its size and further characteristics (intensive use of derivatives, relatively low book-to-market ratio, no selective hedging), one would not expect this company to be influenced in its risk management by the hedge accounting rules. Yet, according to our survey, this is the case. The other three companies are rather small. Given their size, as well as several other characteristics (low intensity of derivatives usage, high free float, high book-to-market ratio, selective hedging), these companies would have been model candidates for susceptibility to the influence of the hedge accounting rules. However, in these instances the representatives indicated in the survey that their companies' hedging behaviour is guided solely by economic principles, without consideration of the hedge accounting rules.
20. Company size remains significant if we change the specification of financial distress in Model 2, where the intensity of the use of derivatives is not considered.

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'Deprival value' vs. 'fair value' measurement for contract liabilities: how to resolve the 'revenue recognition' conundrum?

JOANNE HORTON[a], RICHARD MACVE[b]* AND GEORGE SERAFEIM[c]

[a]*University of Exeter Business School, Streatham Court, Streatham Campus, University of Exeter, Exeter EX4 4ST, UK;* [b]*Department of Accounting, London School of Economics, London WC2A 2AE, UK;* [c]*Unit of Accounting & Management, Harvard Business School, Soldiers Field, Boston, MA 02163, USA*

Revenue recognition and measurement principles can conflict with liability recognition and measurement principles. We explore here under different market conditions when the two measurement approaches coincide and when they conflict. We show that where entities expect to earn 'super profits' (residual income) the conceptual conflict is exacerbated by the adoption of 'fair value' (FV) as the measurement basis for assets and liabilities rather than the more theoretically grounded approach of 'deprival value/relief value' (DV/RV) which better reflects the impact of, and rational management response to, varying market conditions. However, while the problems of balance sheet liability and revenue recognition, and the related problems of income statement presentation, can be resolved by the application of DV/RV reasoning, this is not sufficient fully to resolve issues of the appropriate timing of profit recognition. Performance measurement issues still need to be addressed directly. The standard setters' current projects on 'revenue recognition', 'insurance contracts' and 'measurement' therefore need broadening to consider the pervasive issue of accounting for internally generated intangibles.

Keywords: contract liabilities; deprival value; fair value; intangibles; performance measurement; relief value; residual income; revenue recognition

1. Introduction

In June 2010, FASB and IASB ('the Boards') issued a joint Exposure Draft (ED) on revenue recognition (FASB/IASB 2010). The Boards had previously stated (FASB/IASB 2005, p. 9) that they 'have found their definitions of liability insufficiently helpful in distinguishing revenues from liabilities (for example, when payment for products or services is received in advance)'. After many conceptual twists and turns, with the two Boards sometimes adopting different approaches

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*Corresponding author. Email: R.Macve@lse.ac.uk

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from each other, the joint Discussion Paper (FASB/IASB 2008) debated whether performance obligations under contracts should be measured at fair value (FV). The Boards stated (para. 5.20) that they were 'uncomfortable' with the potential implication of fair-valuing contract assets and liabilities at inception in that it could lead to recognition of 'Day 1' revenue and profit 'before the entity transfers to the customer any of the goods and services that are promised in the contract'.

While the measurement of FV has been extensively discussed in several voluminous publications (most recently in IASB 2011), 'discomfort' is not a concept that has been discussed in either of the Boards' conceptual frameworks (CF), or in their current joint CF revision project (e.g. Bromwich *et al.* 2010, Macve 2010b). Under the 2010 ED it is proposed that the initial measurement of the performance obligation should normally be at the transaction price, with revenue (and thereby related profit) recognised when the promised goods or services are transferred to the customer. FV has been abandoned here.[1]

Insurance is a major industry where the issues have been very fully explored by IASB and FASB. In another series of voluminous papers (see Horton *et al.* 2007, Macve forthcoming), the two Boards have veered first one way and then the other between applying the FV approach to insurance liabilities[2] (where a profit on inception could often result) and proposing that liabilities should normally be initially stated, as in much current practice, by reference to the amount charged for new contracts (with the profit emerging thereafter over the life of the contract). The Boards both favour the latter approach, as proposed in the IASB's July 2010 ED (IASB 2010a), but still differ over the 'building blocks' that make up the total liability amount and how they should subsequently be accounted for. However, the traditional income statement presentation of 'premiums less claims and other costs' is generally to be replaced by an analysis of the margins being earned and of variations in assumptions (FASB 2010).

The Boards' discussions of FV (e.g. Foster and Upton 2001, FASB 2006, IASB 2011) have only added to the confusion. While FV is defined by both Boards as an 'exit price', they also recognise a 'cost approach' as a 'valuation technique' to arrive at FV for assets that are used in the business. Here, exit price becomes 'replacement cost' (RC) because '[i]n effect, the market participant buyer steps into the shoes of the entity that holds those specialised assets' (IASB 2009, BC 61). 'Given the "economic principle of substitution", fair value cannot exceed current replacement cost for the asset's services' (BC 63). Therefore, replacement cost will continue to be used for in-use tangible assets, except presumably where an 'income approach' (i.e. using discounted cash flows) provides a lower value for the recoverable amount (BC 62).

The Boards seem to be groping towards an element of the 'deprival value' (DV) reasoning that we shall argue for here, but without wishing to abandon the claimed 'objectivity' of FV by conceding that in certain situations the value is indeed the owner's own 'entity-specific' estimation of its value.[3] Here they are beginning (albeit without identification of their sources) to pick up elements of the standard microeconomic analysis of price formation in competitive, fully informed markets (e.g. Katz and Rosen 1998), and so have to make heroic assumptions about how information asymmetries or gaps between the entity and the hypothetical prospective 'market participant' buyers of its assets are to be overcome in practice (cf. Akerlof 1970). All this conceptual twisting and turning could have been avoided if the Boards had openly adopted the principle underlying DV – which provides a much clearer conceptual foundation for measurement but which they continue to dismiss (Macve 2010a).

The Boards' more recent approach to FV of assets also raises the question of how far it may in turn be consistent with the 'relief value' (RV) approach to liability measurement that we shall analyse here. While the Boards acknowledge (e.g. IASB 2011, 41(b)) that in certain circumstances the FV of a performance liability might reflect the consideration received for entering into a contract, they have not so far generalised this approach sufficiently to have been able to adopt FV for either their revenue recognition project or their insurance contracts project, leaving inconsistency in the timing of revenue and profit recognition.

While no one measurement basis can be shown to dominate for all users and all decision uses (e.g. Dean *et al.* 2010),[4] our paper seeks to provide a conceptual rationale for preferring the DV/RV approach over FV for financial accounting, which is also more consistent with current conventions for revenue and profit measurement and for income statement presentation. Section 2 first sets out our main argument in favour of RV for liabilities, which adopts the DV logic for assets, *mutatis mutandis*, and therefore corresponds to finding the amount by which an entity would be better off if it were relieved of the liability. We maintain that this argument is of general application to all kinds of business contracts. To illustrate this we take a simple one-year magazine subscription. In Appendix A we discuss how these same principles can be applied to insurance contracts.

In Section 3, we illustrate this argument under two key market situations.[5] We then briefly introduce the issue of changes in prices and other assumptions in Section 4. Section 5 explores briefly how DV/RV reasoning may relate better to desirable income properties. Section 6 concludes.

We aim to show the generality of the theoretical proposition that, given the familiar Hicksian 'No. 1' conceptualisation (Hicks 1946) that 'economic wealth' at the beginning of an accounting period equals the present value of expected future net cash flows (PV), and 'income' equals change in wealth during that period,[6] DV/RV reasoning always measures (under common market assumptions and consistent with a business objective to maximise wealth) the difference in that PV between having and not having an asset/liability. While DV is relevant to managerial and regulatory decisions (e.g. Byatt in Weetman 2007, Macve 2010a: cf. IPSASB 2011), FV by contrast generally fails the tests of relevance and reliability for a measure of business performance (e.g. Penman 2007, 2011). Its focus solely on exit price at the measurement date may be purely hypothetical, as immediate disposal is often not the best option, and it ignores transaction costs, which must be relevant to value and to decision-making.[7]

Supplementary disclosure of FV may be argued to have value in providing information on a business's financial flexibility. Nevertheless even here 'net realisable value' (NRV), which allows for transaction costs to be incurred on disposal, would reflect this aspect better (e.g. Edwards and Bell 1961, Chambers 1974) and could provide more useful supplementary disclosure for investors (cf. Horton *et al.* 2007).

We shall show that the revenue recognition problems for identified contracts (and the problems of income statement presentation) can be resolved by the application of DV/RV reasoning. However, major conceptual difficulties still require resolution, in particular over deciding how to treat situations where entities expect to earn 'super profits', that is to say, profits that cannot be regarded as factor costs in the way that 'interest' and 'reward for risk bearing' may. Moreover, in cases where companies may have invested in building up the necessary internal intangibles that enable them to achieve apparent super profits thereafter, current GAAP accounting for those intangibles is unable properly to match investment and return. Performance measurement issues therefore still need to be addressed directly. The standard setters' current projects on revenue recognition and insurance contracts need broadening to consider the pervasive issue of accounting for intangibles and, more generally, the inadequacy of their current model that identifies 'comprehensive income' solely in terms of changes in recognised assets and liabilities (IASB 2010b, paras. 4.25, 4.47, 4.49).

2. The argument

We contrast here liability measurement under the concepts of RV and FV. While FV is defined by FASB/IASB as an exit price, RV is an economic way of thinking which only under restricted conditions is equal to FV. Specifically, RV corresponds to the benefit an entity would enjoy if the liability disappeared. Unlike FV, which is one of a number of possible measurement bases, DV/RV provides a decision rule for choosing the relevant measurement basis for a given economic situation.

Defining PV as 'the present value of future cash inflows/outflows from continuing with the asset/liability' (often called 'value in use'), it is well known that, at an elementary level, DV for assets can be calculated as follows (e.g. Baxter 1975, chap. 12):

$$\mathrm{DV} = \mathrm{Min}[\mathrm{RC}; \mathrm{Max}(\mathrm{PV}; \mathrm{NRV})] \tag{1a}$$

or DV is equal to the lower of RC and 'recoverable amount' (i.e. the higher of NRV and PV).

Substituting 'replacement loan/advance' (RL) for RC, and 'net transfer value' (NTV), that is, the payment needed to transfer the obligation to a third party, for NRV then, correspondingly

$$\mathrm{RV} = \mathrm{Max}[\mathrm{RL}; \mathrm{Min}(\mathrm{PV}; \mathrm{NTV})] \tag{1b}$$

or RV is equal to the higher of 'replacement liability' and what might be labelled 'obligation satisfaction' (i.e. the lower of PV of amounts to settle the liability directly in due course and NTV).

Clearly, unless prices are extremely volatile, or a serious commercial mistake has been made, both DV and RV at initial recognition will normally be equal to their historical cost/amount (HC).

It is also obvious from the algorithm above that, provided markets exist, DV is always constrained between current (gross) replacement price and current (net) exit price, and only utilises value in use (PV) where neither replacement nor disposal would currently be contemplated as economically rational. In frictionless markets, the difference between entry and exit price will be small so that effectively DV here converges to market price, and therefore also equals FV.[8]

The same result holds for RV. However, Baxter (2003, pp.19–20) withdrew his earlier (1975) support for RV as representing the 'mirror' image of DV, on two main grounds. The first was that for financial liabilities (such as a company's debentures) it was difficult to envisage clearly what the concept of 'replacement loan' implied without imposing a lot more structure on the model (including available investment opportunities, possible capital rationing, etc.). We do not pursue that issue here (Baxter's argument here is supported by Kulkarni 1980, cf. Horton and Macve 2000);[9] but we shall here set out how RV for performance liabilities corresponds well to DV for assets.

Baxter's second objection to RV was that liability values do not in fact mirror the pattern of assets' values over their life. He says (Baxter 2003, p. 16) that 'an asset's value pattern starts with replacement cost, then can have a tail of falling use-values, and ends with net realisable value. This duly includes the three values of the [DV] diagram.' However, after considering different possible situations faced by a firm, he concludes that 'a liability's relief pattern can hardly ever contain figures comparable to an asset's three possible values.... Its value remains firmly at repayment cost, and is not a mirror image of an asset's value.'

His argument here is incorrect: a long-lived asset's DV does *not* during its life progress from RC through PV to NRV. As long as PV remains high enough it stays at RC (albeit 'depreciated' RC as it ages) until the time comes to dispose of it, when any remaining NRV (which may be zero if there is no final scrap value) will now be at least as large as both PV and (depreciated) RC.[10] Therefore, Baxter's description here of how asset values behave is incorrect, and therefore his resulting objection to RV here is incorrectly based. As we shall argue, in the absence of price changes, the RV of a profitable performance obligation falls during its life from the initial consideration (= RL at that time) through 'amortised' RL until the last payment is made (normally the final instalment of PV but sometimes NTV if that can be arranged more cheaply). It therefore completely mirrors a profitable use-asset's DV pattern. In both cases, deprival/relief brings the need/opportunity to replace earlier than the originally planned date of expiry.

As neither of his objections applies to performance obligations (which Baxter 2003 does not explore) we shall now set out to analyse these here.[11] However, first a warning: the simple pedagogical formulation of DV and of the 'decision trees' and 'ranking tables' frequently derived from it (e.g. Van Zijl and Whittington 2006, Weetman 2007, cf. Macve 2007) may be effective in getting the message across that normally RC gives an upper bound on the value of a firm's asset. (This is because, even though the asset is expected to yield a higher PV or NRV, the normal market opportunity to replace – what IASB 2009 labels 'the economic principle of substitution' – means that RC would be sufficient compensation on deprival.) However, there can be serious dangers in over-reliance on it. For example, for depreciating assets over the subsequent course of their useful life, Baxter (1971, pp. 34–36) showed that RC generally needs interpreting, not as the current second-hand market purchase price, but as 'the adverse consequence of deprival on the present value of all future cash flows, given that the asset now has to be replaced earlier than planned'.

As we shall show, similar complexities arise with performance liabilities when the contract period extends beyond the end of the accounting period, so that there has been partial performance to date. These situations do require management estimates of optimal actions. Consequently, like PV, the resulting DV/RV might be criticised as 'too subjective' for financial reporting. However, as markets get deeper, RC and NRV for assets become ever more readily observable and then, as Baxter demonstrated, DV must always be bounded by these market prices so the only subjectivity lies in fixing where on the spectrum in between them (and including them) DV lies. RV for liabilities represents the same case. So DV (and equivalently RV) tends towards FV in perfect markets but copes much more adequately and simply than FV does with typical real-world market imperfections, where buying and selling prices differ and there are transaction costs or other frictions. Here FV fails appropriately to measure the impact of the asset/liability on the net present value of all future cash flows in the way that DV/RV correctly does (subject to the aggregation problem common to all valuation approaches below the level of the whole firm).

The particular focus of this paper is on the relationship between liability measurement and revenue recognition. We therefore next explore the accounting for the liability for the 'revenue in advance of costs' in an uncompleted contract. This focus is readily illustrated by a simple example, such as accounting for prepaid magazine subscriptions, but is obviously generally applicable to a spectrum of common business activities (including insurance, see Appendix A). We rely on a general model, making the minimum number of assumptions necessary, to highlight that the problem of accounting for incomplete performance is generic rather than industry-specific, and to show how there is no essential conflict between the 'release of liability' and the traditional 'revenue earned/performance based' approaches to revenue recognition and related profit recognition. Specifically, the only necessary assumptions beyond reasonably functioning markets are the nature of competition in the industry, and a contract where (at least some of) the consideration is receivable in advance of performance.[12] The analysis will hold whether markets are in long-run equilibrium or only in short-run equilibrium, or indeed in disequilibrium (the consequences of any resulting volatility in prices or in other economic assumptions are considered in Section 4).

The paper builds on many of the ideas in Lennard (2002) and counters the views of Nobes (2003). While Nobes argues for exit valuation of liabilities (and corresponding recognition of profit on inception of contracts), Lennard's essay seeks to justify a RV measurement basis as against the dominant focus of IASB/FASB on FV or proxies for it. The difference in emphasis is that our paper aims to provide a more strictly 'value measurement' argument, derived from analysing alternative market conditions, about why the 'deferred revenue' is the relevant RV of a liability. This may be regarded as providing the answer to the general question: 'What difference would it make to the PV of future cash flows if the contract liability were removed?' In contrast, Lennard's paper (e.g. paras. 25(ii) and 34) appears to rely more, as the FASB/IASB projects do, on arguments relating to the question 'when does the performance occur?' In a nutshell, we argue that, just as Baxter showed that the value (DV) of a profitably employed asset is that it saves the business having to make the outlay to replace it before the best time so, correspondingly, the burden (RV) of a liability to perform on a profitable contract is that it prevents the business getting the inflow from signing up a replacement contract until the current customer is satisfied.[13]

We advance three main arguments. The first conclusion of our paper (consistent with that of Lennard) is that the asset/liability and deferral/matching approaches can be reconciled via DV/RV and thereby avoid forcing unconventional revenue and profit recognition patterns. In this respect, it is consistent with the Boards' latest proposals for both the revenue recognition and the insurance projects.

However, a more significant, second conclusion is that adopting DV/RV is not sufficient to resolve all the conceptual issues relating to profit recognition patterns. Those issues still need addressing directly and are primarily related to the recognition and measurement of intangibles, both purchased and internally generated.

Thirdly, the model in this paper also illustrates that it appears unnecessary, when adopting a 'value-based' approach to liabilities, wholly to abandon traditional styles of income statement presentation. Retaining the traditional forms should better assist users in trying to understand how far the results of the current period 'true up' against previous assumptions (e.g. Penman 2007).

In illustration of our general theoretical argument, we explore in the next section a simple example of how some possible situations would be accounted for and presented in the financial statements under our approach. These will be summarised in Table 1, which gives a simple numerical illustration. Appendix B extends the argument to the case of positive interest rates, for greater generalisability, with Table B1 giving the algebraic illustrations.[14]

3. The setting

Our aim is to demonstrate how far the application of RV, rather than FV, reasoning in the measurement of contract liabilities can help to resolve the apparent conflict between 'asset/liability' approaches and 'deferral/matching' approaches. In order to bring out the basic issue we focus initially on the special case where the interest rate is 0%, that is, we exclude interest effects as in Forfar and Masters (1999). This will enable us to illustrate our three main arguments and show the relationship to ordinary accounting conventions more clearly. Interest effects are considered in Appendix B and Table B1, where they are shown not to alter the main conclusions.

Our setting has the following simple assumptions. The Revrec Corporation receives payment in advance of performance on 1 July. In the simplest case, one could think of Revrec as a magazine publisher collecting an annual subscription in advance for 12 monthly issues of a magazine. Its year-end is 31 December.[15] Costs over the contract are expected to be £y, for simplicity assumed to be incurred evenly with production and distribution (i.e. £$y/12$ per month) and such that marginal costs equal average costs. Ignoring risk, under perfectly competitive equilibrium conditions, Revrec will only be able to charge £y and profit will be zero, consistent with the predictions of microeconomics that in long-run equilibrium only factor costs are covered in fully competitive markets (e.g. Katz and Rosen 1998). If the total costs and revenues for the year are both £114 (= £9.50 per month), traditional revenue recognition conventions, given £114 due in advance, would allocate £57 to the half year to 31 December, leaving unearned revenue at that date at £57, just sufficient to cover the second-half-year costs. A total of £57 is also the RV as, in perfect markets, it represents both (a) the amount by which the PV of future cash flows would improve if Revrec were now able to abandon this contract and issue a replacement contract six months earlier than previously planned (i.e. overall gaining six months' additional revenue but facing the same costs) and (b) the amount that competition would ensure had to be offered either to refund the customer on cancellation, or to pay another publisher

Table 1. Recrev Corporation: an example.

Numerical illustration (assuming interest rate = 0%)
Dynamics of solution 1: CE $= y =$ £114; TP $= y - y =$ £0
Dynamics of solution 2: CE $= y +$ RP $=$ £114 + 6 = 120; TP = RP = CE $- y =$ £6
Dynamics of solution 3, 4: CF = CE $+ \xi = y +$ RP $+ \xi =$ £114 + 6 +12 = 132; TP = RP $+ \xi =$ CF $- y =$ £18
Dynamics of solution 4: IRR $= r$ (see Table B1) and is here calculated to be −1.458% per month (−15.941% per annum)

		Income statement year 1 (six months)								
Solution		Magazine revenue £	Income other (NPV/recycling) £	Income other (unwind of r) £	Total income £	Costs magazine £	Costs amortisation of NPV/goodwill £	Total cost £	Profit (Jul–Dec) Year 1 £	Profit (Jan–Jun) Year 2 £
1		57.00	–	–	57.00	57.00	–	57.00	0	0
2		60.00	–	–	60.00	57.00	–	57.00	3.00	3.00
3	Either (a)	66.00	–	–	66.00	57.00	–	57.00	9.00	9.00
	or (b)	66.00	6.00	–	72.00	57.00	–	57.00	15.00	3.00
	or dv(a)	66.00	–	–	66.00	57.00	–	57.00	9.00	9.00
	or dv(b)	66.00	12.00	–	78.00	57.00	6.00	63.00	15.00	3.00
4		66.00	−6.00	8.86	68.86	57.00	–	57.00	11.86	6.14

		Balance sheet 31 December year 1					
Solution		Assets: cash etc. £	Other NPV/ goodwill £	Total assets £	Liabilities contract £	Equity (undistributed profit) £	[Assumes half total profit distributed to date =] £
1		57.00	–	57.00	57.00	–	0
2		60.00	–	60.00	60.00	–	3.00
3	Either (a)	66.00	–	66.00	66.00	–	9.00
	or (b)	66.00	–	66.00	60.00	6.00	9.00
	or dv(a)	66.00	–	66.00	66.00	–	9.00
	or dv(b)	66.00	6.00	72.00	66.00	6.00	9.00
4		66.00	–	66.00	63.14	2.86	9.00

Variables are defined in the text (and extended in Table B1).
Solution 1 assumes no risk. Total profit on contract is [£0].
Solution 2 assumes risk premium (RP). Total profit on contract is [£RP].
Solution 3 assumes also super profit ξ. Total profit on contract is [£(RP + ξ)].
Solution 4 is based on IRR (= r). Total profit on contract is [£(RP + ξ)].
The solutions are equivalent, *mutatis mutandis*, for the case of the insurer (Insrec Corporation), where 'magazine revenue' is 'premium income' (see Appendix A).

to take over the reminder of the contract. In such perfect markets, with no transaction costs, it will also represent FV. The corresponding illustrative numbers are presented as conventional accounts in Solution 1 in Table 1.[16]

However, Revrec also needs to cover risk, assumed to require an additional risk premium of £RP per contract-year.[17] Therefore, the certainty equivalent will be the sum of performance costs and risk bearing:

$$\mathrm{CE} = y + \mathrm{RP}. \tag{2}$$

The certainty equivalent of expected performance costs is £CE/12 per month.[18]

We examine Revrec's revenue and profit if all expectations are realised and if it charges either:

(i) £CE for a year's subscription (i.e. £CE/12 per monthly issue) or
(ii) £CF (i.e. £(CE/12 + ξ/12) per monthly issue), where ξ is the 'abnormal profit', or super profit earned. The super profit may be due, for example, to imperfectly competitive conditions. The result is that:

$$\mathrm{CF} = \mathrm{CE} + \xi = y + \mathrm{RP} + \xi. \tag{3}$$

With our illustrative numbers, and assuming that the risk premium is £0.50 per month, so that factor costs now total £120 p.a., and that super profit for the whole contract is £12, the corresponding accounts are given as Solution 2 and Solution 3 in Table 1. Under (i) the total contract revenue is £120, recognising £60 in the first half year, and under (ii) £132, recognising £66 in the first half year.

For example, one could think of our market setting in (ii) in terms of the outcomes analysed in cooperative game theory (e.g. Green *et al.* 1995), where the firm's bargaining power will determine the division of value. If the firm is able to raise the willingness of customers to pay or is able to lower the opportunity costs of its suppliers and, as a result, appropriate more value compared to competitors, it will obtain super profits, at least in the short term.[19] As we next analyse, it is the presence of firms that exhibit asymmetry to their competitors and are able to capture higher value, that cause conflicts between the 'asset/liability' and the 'revenue recognition' accounting approaches when exit values such as FV are adopted.

3.1. *Solution when Revrec charges £CE*

Solution 2, in Table 1, first illustrates the key economic situation of perfectly competitive markets. As Revrec is charging no more than is needed to cover all costs including required normal economic profit (i.e. interest and risk), the accounting profit is £RP = (CE − y) in total if expectations are realised (i.e. interest [£0] and reward for risk bearing [£RP]). Pro rata revenue earned and profit earned to 31 December are £CE/2 and £RP/2, respectively. In this case the balance sheet liability at 31 December is unambiguously £CE/2, representing, in competitive markets, both the consideration that would be charged for the six months' remaining magazines and the amount it will cost to perform the remaining half of the contract (including the cost of risk bearing). It is also the amount a customer would expect to be reimbursed if the contract is cancelled at that point ('cost of release'). Again, in competitive markets, with no transaction costs, RV = RL = PV = NTV (and = FV). With our illustrative numbers, revenue and profit for the first six months are £60 and £3, respectively (where the accounting profit represents the earning of the risk premium), and the liability at 31 December is £60 whichever of these measurement approaches is adopted.

The presence of transaction costs would alter the picture and potentially drive a wedge between RL and NTV, normally making the former lower and the latter higher (just as they can between RC and NRV for assets, normally making the former higher and the latter lower). This does not alter our result. Clearly, PV for liabilities must now also be sufficiently lower or firms will not take on the obligation and, provided PV is still sufficiently low, RV would still be RL but now FV (which ignores transaction costs) is too low. (As illustrated by Van Zijl and Whittington 2006, the corresponding relationships, *mutatis mutandis*, apply to DV of assets.)

3.2. *Solution when Revrec charges £CF*

In Solution 3 in Table 1, Revrec is charging £$\xi/12$ per issue/month more than is needed to cover all costs including normal economic profit (i.e. interest and risk). Consequently, accounting profit is £(TP) in total if expectations are realised (i.e. interest [£0] plus reward for risk bearing [£RP] plus super profit [£ξ]); pro rata revenue earned and profit earned to 31 December would conventionally be £(CF/2) and £(TP/2), respectively:

$$\mathrm{TP} = \mathrm{RP} + \xi. \tag{4}$$

With our illustrative numbers, revenue and profit on this basis for the first six months are £66 and £9, respectively (where the accounting profit represents the earning of the sum of the risk premium and the super profit). The corresponding liability on the contract at 31 December would be shown as £66 (equal to the unearned revenue). However, should it be only £60 (with additional profit of £6 recognised in the first six months) as argued by Nobes (2003)?

In this case ('less than perfectly competitive markets'), the balance sheet liability at 31 December is potentially one of the following:

(a) £(CF/2), representing the consideration that could be charged for the remaining six months of magazines/insurance – in our illustration, £66.

(b) £{$\mathrm{CE}/2 = (y/2 + \mathrm{RP}/2)$}, being the amount it will cost to perform the remaining half of the contract (including the cost of risk bearing) – in our illustration, £60.

(c) £(CF/2) would also appear to be the amount a customer would expect to be reimbursed if the contract is cancelled at that point ('cost of release') – in our illustration, £66.

Clearly, Revrec would plan to perform rather than cancel the contract, as this is the more profitable alternative. Consistent with Lennard's RV approach (2002), (c) does not therefore seem to be a relevant amount on a 'going concern' basis.[20] If (a) is adopted (equivalent to the deferred revenue on a conventional matching approach), revenue and profit for the first six months are the conventional £{$\mathrm{CF}/2 = (\mathrm{CE}/2 + \xi/2)$} and £($\mathrm{RP}/2 + \xi/2$), respectively – with the same to come in the second six months. The corresponding accounting is set out in Table 1, Solution 3(a).

However, (b) would appear to be the FV of the liability as defined by FASB/IASB, and is the relevant value according to Nobes (2003).[21] Under FV accounting, profit for the first six months would therefore rise to £($\mathrm{RP}/2 + \xi$) (i.e. interest [£0] plus reward for risk bearing [£RP/2] plus all of the 'NPV' of the super profit [£ξ]) – with just £RP/2 normal profit to come in the second six months. In Solution 3(b) in our illustration, this gives £15 as the profit in the first six months with £3 normal profit to come in the second six months.

Contract revenue could still be stated at £{$\mathrm{CF}/2 = (\mathrm{CE}/2 + \xi/2)$} for each period of six months (in our illustration £66) but only if the value of the anticipated further excess revenue (i.e. £$\xi/2$) (in our illustration £6) is also recognised in the first six months and is then 'recycled'/'reclassified' out again in the second six months in a manner similar to revaluations of 'available for sale' securities recycled/reclassified to profit and loss on realisation (IASB 2007a).

Lennard's RV (2002) is $\pounds(\mathrm{CF}/2) = \pounds 66$, that is, the higher of consideration $[\pounds(\mathrm{CF}/2) = 66]$ and the lower of (remaining performance cost $[\pounds(y/2 + \mathrm{RP}/2) = 60]$ and cost of release $[\pounds\mathrm{CF}/2 = (y/2 + \mathrm{RP}/2 + \xi/2) = 66]$). Under what circumstances is it realistic to regard this rather than $\pounds(\mathrm{CE}/2) = \pounds 60$ as the liability at 31 December? The key argument here is that one has to ask 'what are the market circumstances that can give rise to this situation?' If one presumes that Revrec is behaving rationally and optimally, it will have already taken on as many such contracts as can be handled while adding to profits – but no more (i.e. it will have as far as possible equated marginal cost and marginal revenue). Reasons not to take on an additional contract might include adverse consequences of having to lower the price and/or rising costs (whether operating, financing or organisational) of further expansion, perhaps due to indivisibilities such as the need to incur major investment that would require finding outlets for substantial, rather than simply marginal, production volume increases; or it may face regulatory constraints, for example, on size of market share.[22]

So the crucial insight here, which mirrors Baxter's argument for DV of assets (2003, pp. 4–5), is that:

> if Revrec is now at its optimal capacity but it still has 'super profitable' contracts, then if 'relieved' of one of those current contracts immediately after inception Revrec would seek to use the production capacity now freed up to obtain and fulfil another 'replacement' subscription, for which it could again charge £(CF).

In other words it would end up in the same position as before, still facing production outlays and risk with an expected cost of $\pounds(y + \mathrm{RP})$, but would now have received a further $\pounds\mathrm{CF} = \pounds(y + \mathrm{RP} + \xi)$ from the 'replacement' subscriber. Again the equivalent amounts at 31 December would be $\pounds(y + \mathrm{RP})/2$ and $\pounds(\mathrm{CF}/2)$, respectively (here £60 and £66).

The entry value ('consideration'), rather than FV, may therefore be taken as the relevant liability measure for a profitable contract, however profitable that contract may be. In our illustration, this approach gives revenue and profit in each period of six months as £66 and £9, respectively, with the 31 December balance sheet liability as £66. (Table 1, Solution 3dv(a) shows the accounts for these income statement and balance sheet amounts.) If Revrec uses RV as the measure of its liability (as 'relief' would enable the signing of a substitute profitable contract), this valuation will be equivalent to conventional deferred revenue throughout and so would lead to balance sheet and income statement figures generally identical to those under the conventional 'revenue recognition/matching' approach, even though we are here adopting primarily an 'asset/liability' framework. RV offers a resolution of the revenue recognition conundrum and is consistent with the Boards being uncomfortable with adoption of FV's 'exit price' and its forcing of recognition of 'Day 1' profit.

3.3. *Recognition of inherent goodwill?*

Even with this higher liability value given by RV [i.e. $\pounds(\mathrm{CF}/2)$], Revrec could still choose to report all the profit on inception of the contract if it were allowed to value the relevant 'inherent goodwill', as in Solution 3dv(b) in Table 1. Corresponding to Solution 3(b), here the accounting, if it is to follow conventional practice as to the amount of contract revenue recognised and *in addition* take a 'Day 1' profit equal to the NPV of the super profit, would then also have to require 'amortisation' of this initial profit measure as revenues are earned and costs incurred (to avoid double-counting). However, the addition of these two elements would still not necessitate a wholesale recasting of the income statement from a 'traditional' basis onto a 'changes in valuation' basis of the kind proposed by IASB (2010a) for the generality of insurance contracts.

In our illustration in Table 1, Solution 3dv(b), this approach gives revenue in the first six months as £66, with an additional recognition of net internal goodwill of £6 (effectively adding to profit the present value of the second six months' goodwill). This gives a bottom-line profit of £15 in the first six months. Revenue in the second six months is again £66, with additional recognition of the amortisation of the remaining goodwill (£6) to leave net profit for that period equal only to the normal profit of £3, representing release from risk. The 31 December balance sheet liability is stated at RV of £66, but there is also the unamortised balance of goodwill among the assets (£6).

Situations where recognition of this internal goodwill might be more readily accepted in practice would be where there is strong market evidence that the profit estimate on the contract is realistic: for example, where other companies would be prepared to pay an acquisition cost of up to £ξ to take over Revrec's contract (or pay for goodwill of £ξ to take over the company instead) and thereby still earn a normal profit on the business after charging for that acquisition cost/goodwill. Revrec could thereby realise the £ξ immediately on inception of the contract. If it does not wish to actually transfer its business in this way, it could nevertheless mark to market and report the value gain accordingly, which would then have to be recycled as a charge against the subsequent conventional reporting of revenues and profits earned.

In the absence of a market for Revrec's contract, or an actual takeover, it will remain harder to estimate the goodwill value in the existing contract as a guide to how much up-front profit on inception it is legitimate to recognise. A result from adopting an 'asset/liability' approach that produces an apparently large profit on inception would therefore need to be carefully tested by asking what market conditions make it reasonable to believe that an enterprise such as Revrec is able to successfully charge premium prices that significantly exceed factor cost, and yield a return over and above that required by equity shareholders to compensate simply for time and risk bearing. An extremely safe, conservative view for accounting and auditing purposes might be simply to assume that such situations cannot arise (or at least cannot be sustained for long in a competitive economy) and therefore to argue that costs and/or the risk premium must have been underestimated, and the provisions for one or more of these should be increased until all initial profit is eliminated, so that all profit has to 'emerge' over the life of the contract.

The joint approach of FASB/IASB (2010) to revenue recognition from contracts with customers – like the approaches of FASB (2010) and IASB (2010a) to what IASB labels the 'residual margin' in insurance contracts – reflects this caution, and refuses to allow recognition of 'Day 1' profits. However, the problem of determining what is a suitable pattern within the contract period will still remain. If the initial, more 'aggressive' estimates do turn out to be correct, higher profits will eventually emerge by the end of the contract period than those assumed in fixing the accounting provisions. But when should they be recognised, that is, how much profit can be recognised by 31 December?

What is happening during the contract period is that the value of the super profit, which is conventionally an unrecognised intangible, is being realised. Should it be recognised that imperfectly competitive conditions are present when the contract is initiated or only 'gradually' as it is proved that actual costs are indeed less than revenues?[23] Can that be adequately proved before the contract is wholly completed?[24] Furthermore, can the 'risk premium' itself be adequately measured: or is the uncertainty in the estimates so great that 'certainty equivalents' are themselves little more than guesses and all resulting profits (or losses) may better be seen as 'a reward for bearing uncertainty' due to the dynamic nature of a modern economy in which technological change, shifting demand and management action produce markets that are at best in temporary and unstable equilibria (e.g. Knight 1921)? This is where FASB (2010) differs from IASB (2010a), as it does not separately recognise the risk premium in an insurance contract but lumps it within an overall 'composite margin' –see Appendix A.

Without some form of reliable external market benchmark any choice of profit recognition pattern is an 'incorrigible allocation' (i.e. logically as good as any other, e.g. Thomas 1977, Macve 1997) and wholly conceptual arguments about the nature of assets and liabilities, and about recognition and measurement criteria, seem unlikely to take the debate any further forward. A revision to the standard setters' conceptual framework may acknowledge the problem, but seems unlikely to be able to solve it. It would appear that evidence of how relevant markets are behaving is what is needed to guide accounting in different individual reporting situations – the deeper and more mature the market, the stronger the available evidence and the less need to rely on management estimates or on judgements as to whether or not accounting policies adopted are reasonable given the uncertainties involved.[25]

Our initial conclusion therefore stands – that the conventional amount for 'deferred revenue' can represent the RV of a contract's performance liability and that DV/RV reasoning offers a resolution of the conflict between the 'revenue recognition' and 'asset/liability' approaches to stating balance sheet measures and income statement elements. However, unfortunately it is also clear that this resolution of the balance sheet measurement problem is not sufficient in itself to resolve the issues over 'bottom-line' profit recognition. Such recognition is a separate issue and essentially requires deciding whether or not to recognise internal goodwill (whether or not identified with particular intangibles such as brands) and thereby the profitability of contracts ahead of their actual full or partial fulfilment (or indeed before their inception).[26] Standard setters clearly need not only to devote attention to clarifying and refining their valuation concepts but also to move beyond regarding asset/liability valuation alone as an adequate tool for resolving accounting conflicts (e.g. FASB 2006: cf. Barth and Landsman 1995, Horton and Macve 2000, Dean *et al.* 2010).

3.4. *The internal rate of return*

For both revenue recognition generally and insurance contracts in particular, FASB and IASB propose to eliminate the recognition of any profit at inception (see Appendix A). One way to do this would be to adjust the estimate of the required rate of return to the 'internal rate of return' (IRR) or 'effective interest rate' [$= r$] and thereby eliminate the NPV of the contract. Profit will then emerge as the earning of the IRR on the initial consideration value.

In our simple example with a super profit of ξ (= £12), and where the market rate of interest is assumed to be zero, the rate of return required on the customer's initial deposit that equates it to the future costs/risk releases to be incurred by Revrec is clearly negative [$r < 0$] (as it only requires Revrec to pay a total of £y (= £114) to supply the customer with magazines, against an initial purchase price received of £CF (= £132), that is, the sum of the future cash outflows is less than the initial price received).[27] This is much cheaper than borrowing £CF at the market rate of interest (even when that rate is 0%), which would require repayment here (with interest at $i = 0\%$ per month) by 12 instalments of £(CF/12) (= £11) totalling £(CE + ξ) (= £120 + 12 = 132). As Revrec thereby gains £(CF − y), which yields the total profit of £(RP + ξ) (= £6 + 12 = 18) over the contract's life, it effectively here *earns* interest on borrowing from its customers (it is borrowing at a *negative* interest rate of r% per month) as well as earning interest from investing the customer's advance at i% per month (here = £0), and thereby earns an overall positive IRR. The profit split by this method as the liability decreases (i.e. when we are assuming that $i = 0\%$) would be £[$-\text{IntEV}_{\text{CE},1-6,r}$ + RP/2] to the first six months to 31 December and £[$-\text{IntEV}_{\text{CE},7-12,r}$ + RP/2] to the second six months.[28] This is more conservative than the FV 'asset/liability' method as no 'profit on inception' is recognised. However, it is less conservative than the conventional 'deferred revenue' method as here more overall return is earned in the first six months, while the balance of the outstanding customer liability at 31 December is smaller.[29] In our numerical example with super profit of £12, when the interest rate $= 0\%$, the resulting IRR (r) on the liability is -1.458% per month (approximately -16% per annum). At this rate, revenue for the first six months is £66 (as before) and profit is £11.86, with the remaining liability at 31 December at £63.14. The remaining profit of £6.14 correspondingly emerges in the second six months, as shown in Solution 4 in Table 1.

However, the objection to using the IRR is that it is no more than a 'fix' to avoid any recognition of profit on inception. In addition, it produces balance sheet amounts at 31 December that are hard to understand. The 'liability' balance at this date (calculated using the IRR) will be £$EV_{CE6,r}$, being neither the 'deferred revenue' of £$PV_{CF6,i}$ (which we have argued to be the RV), nor the risk-adjusted liability for future costs of £$PV_{CE6,i}$.[30] It therefore produces figures that cannot be interpreted either in the way that current GAAP figures can, or in any way that 'conceptual framework' measurement of liabilities might be understood (see also Draper *et al.* 1993). Its main advantage is that the showing of an earned rate of return consistently higher than the cost of capital is a widely understood way of indicating that super profits are being made. However, it is just one of many possible ways of spreading the total expected contract income between the two accounting periods and is not demonstrably superior on any conceptual grounds.[31]

4. Changing prices and other assumption changes

Like IASB (2005), which only deals with measurement at initial recognition, we do not analyse fully here the effect of changing prices. However, we note that the UK ASB's discussion paper on *Revenue Recognition* suggested that often an appropriate technique when 'dealing with incomplete contractual performance is to assess the value of benefit that has not yet accrued to a customer' (2001, para. 3.22), which is consistent with the proposals of FASB/IASB (2010). However, inconsistently with RV reasoning, it argues that:

> Once again, when making this assessment, it is important that it is based on prices and circumstances that would have prevailed at the time the contract was originally formed; otherwise, *changed prices may distort the allocation of overall revenue from the contract.* (ASB 2001, para. 3.23 – emphasis added)

If, at the year-end, conditions have changed such that Revrec can now charge more for its services, while costs have not changed, then the conventional 'historical cost' revenue recognition approach will still show the originally expected amounts. However, RV will rise because avoidance of the current obligation would allow entry into a new, replacement contract at the new price. Should revenue also be raised – or should some other income statement item capture the price revision?

There is clearly an 'opportunity loss' from being saddled with the current contract (and equivalently an 'opportunity gain' if prices have fallen). But whether the accounts should record any loss or gain as part of 'current earnings' opens up the same arguments as those debated frequently in the past (e.g. Edwards and Bell 1961, Baxter 1975, Whittington 2008) over whether 'holding' gains and losses from changes in replacement costs of assets should be recognised, and if so whether this should be in current earnings or presented separately (e.g. as reported currently under IFRS in 'Other Comprehensive Income (OCI)') and, if the latter, whether they should then be 'recycled' into current earnings in subsequent periods to offset the higher or lower cost (here revenue) amounts then flowing through.[32] It may be noted however that not recognising such revaluation gains and losses, as recommended by ASB (2001), has the same overall net effect on earnings as initial recognition outside earnings coupled with subsequent recycling into earnings.

Where the higher price now being charged to new customers also reflects the opportunity for Revrec to earn a higher margin of profit in the future, it would seem paradoxical to show a loss now due to restating the current liability at the new higher RV amount. Clearly a satisfactory overall solution also requires recognition of the related intangible for the NPV (as discussed above), which should also be restated upwards to reflect the additional profit the company could earn at the new price. Once again, not repricing the liability is tantamount to the implicit recognition of this gain.

The repricing issue therefore emphasises our previous argument that profit recognition (and thereby performance measurement) needs to be considered independently of simply resolving asset and liability measurement issues, and this may also change revenue recognition.

More generally, we have assumed in the discussion so far that events turn out as planned. In practice, however, actual outcomes will diverge in various ways from expected outcomes and estimates of remaining outcomes will be revised. If the revisions to outcomes/estimates only arise in the second half of our contract-year, then the profits reported for the first half year will remain identical. Clearly if the revisions are adverse (e.g. costs are now expected to be higher), then the accounts will now show smaller profits, or indeed losses, in the second half-year and overall (after charging for interest and risk bearing). Equally clearly, the more profit that has been recognised in the first half of the year, the greater the loss (or at least profit fall) that will have to be reported in the second half-year. However, provided a proper provision for risk is made initially, this possibility would not appear of itself to justify changing the pattern that is chosen *ex ante*.

Revisions to experience and future estimates may also arise before the accounts at 31 December are finalised. If the revisions are favourable, this will create (or further increase) NPVs; if unfavourable this will reduce or even eliminate NPVs; and if they become sufficiently unfavourable provision will be needed for what is now an onerous contract (as conventional accounting recognises, at least when undiscounted future cash flows are expected to be negative or insufficient to recover existing stated asset amounts). The same difficulties as previously discussed over deciding when to recognise any changes in positive NPV will arise, but our analysis has suggested that *all* changes in asset and liability values, including internal goodwill, are needed to give a full picture (e.g. Edey 1963).

The Boards are taking a different approach but without any clear conceptual justification. With regard to revenue recognition generally, the joint 2010 ED does not propose any departure from spreading the original contract transaction price (except where the contract becomes onerous); and in respect of insurance contracts, while other elements constituting the liability amount are to be re-estimated, the Boards propose that the residual margin (IASB)/composite margin (FASB) in their initial liability estimates continue to be released into earnings on the original pattern (see Appendix A).

5. Profit patterns

Ohlson (2006), now supported by AAA (2010), argues that investors like to have a natural starting point in the income statement as they try to forecast subsequent periods' sustainable earnings.[33] The concept of sustainable earnings is consistent with Hicks's 'No. II Income' (1946), which can be described, in the case of a firm, as the maximum amount of periodic dividend it can pay to the owners of the equity, into infinity. Ohlson argues that reporting such maintainable earnings would require that assets and liabilities be derived from income and not vice versa (as in his formulation there of an 'accounting principle' for deriving a period's closing net operating assets).

Only when interest rates are expected to, and do, remain constant does Hicks's 'No. II Income' coincide with Hicks's 'No. I Income' (1946), that is, the maximum dividend an entity can distribute each period while leaving its capital value intact (as in Ohlson's 'steady state' formulation). The 'asset/liability' approach adopted by FASB and IASB measures assets and liabilities and thereby defines income as changes in these and so adopts a *structurally similar* approach to Hicks's 'No. I' concept (cf. Bromwich *et al.* 2010). Under the assumption of no expected change in the interest rate, the approach to income measurement adopted by standard setters could therefore still produce persistent earnings. However, as illustrated in our argument above, in conditions of imperfect competition an exit value measurement basis such as FV cannot produce a maintainable earnings figure, as it normally forces recognition of the total super profit on 'Day 1' (as in Solution 3(b) in Table 1).[34]

So in periods where contracts are initiated, FV profits will be much higher compared to periods where profits are only made from the carrying out of existing contracts. FV measurements, as currently defined, cannot therefore of themselves provide bottom-line income numbers of the kind that Ohlson argues are directly useful to analysts, as the resulting profit pattern will exhibit greater volatility[35] compared to the profit pattern that would be created by DV/RV measurements under the reporting approach illustrated in Table 1, Solution 3dv(a). Analysts may also thereby be hindered from understanding the ongoing processes by which profitable firms add value during their performance activities through turning inputs (at entry prices) into outputs (at exit prices), that is, their 'business model' (see, e.g. Penman 2007, 2011, Singleton-Green 2010, for further discussion).

Whatever pattern of profit reporting is adopted, under whatever system for reporting asset and liability values, it is clear that disclosure of the assumptions being made about future growth and profitability is also needed if a picture that can be fully interpreted is to be given (e.g. Bromwich 2010, Bromwich *et al.* 2010).

6. Conclusion

Will the 'asset/liability' approach produce reported earnings patterns of better 'quality' than the 'revenue recognition' approach? A conflict most generally will appear wherever enterprises expect to earn super profits, for instance, profits that cannot be identified as factor costs in the way that items such as 'interest' and 'reward for risk bearing' may. Moreover, in many circumstances, even these elements may not be separately estimable with any reliability from market benchmarks. In other cases, while companies may have invested in building up the necessary intangibles that enable them to achieve apparent super profits, current GAAP accounting for these intangibles fails to properly match investment and return.

DV reasoning (in the form of RV) does offer a reconciliation of the 'asset/liability' approach and the 'revenue recognition' approach to the measurement of liabilities. We have argued that the exit price liability measurement approach of FV (which also ignores transaction costs) generally fails the tests of both decision-relevance and economic logic. Moreover, RV does not force the recognition of 'Day 1' profit on inception of a contract, which has proved to be a major stumbling block in the Boards' discussions of revenue recognition and insurance contracts. Our analysis provides conceptual clarification that supports the Boards in being 'uncomfortable' about the implications of adopting FV here, and their focusing instead on the consideration associated with the transaction. Moreover, our accounting illustrations in Table 1 show that adopting RV allows reflection of current values while obviating the need for a wholesale recasting of the presentation of the income statement (of the kind proposed in IASB 2010a).

However, we have also argued that this balance sheet/income statement reconciliation is still insufficient in itself to determine the issue of when profits should be recognised: that requires specific consideration of how performance should be measured, and not just of how it should be presented. It is therefore unfortunate that it is only the latter issue which became the focus of the Boards' joint project on 'performance reporting' (downgraded to 'financial statement presentation', cf. Barker 2004).

Given that the conflict with current GAAP pervades all kinds of business it would appear that the Boards will need to consider the whole issue of accounting for intangibles, and indeed the overall adequacy of a model that identifies 'comprehensive income' solely in terms of changes in recognised assets and liabilities (e.g. Macve 1997, Bromwich *et al.* 2010), before they are likely to make any progress in going beyond 'revenue recognition' issues to the appropriate measurement and presentation of the corresponding reported performance.

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Notes

1. A comparison of FASB/IASB proposals on revenue recognition, insurance contracts and fair value measurement is available from the authors on request. See also Barker and McGeachin (2010). IASB now plans to re-expose its revenue recognition proposals and re-expose (or issue a review draft of) its insurance proposals: http://www.ifrs.org/Current+Projects/IASB+Projects/IASB+Work+Plan.htm (accessed 3 July 2011).
2. Labelled 'Current Exit Value' in the IASB's 2007 Discussion Paper (see Horton *et al.* 2007).
3. The 'economic principle of substitution' was of course the original insight underlying the DV approach to valuation in imperfect markets (e.g. Baxter 1971).
4. All valuation measures are subject to the 'aggregation' problem (e.g. Edey 1974), requiring a choice of what standard setters refer to as 'the unit of account' (e.g. FASB/IASB 2005).
5. Extension to insurance contracts is introduced in Appendix A. Extension to interest effects is set out in Appendix B. Further supporting analysis is available from the authors on request.
6. We consider alternative definitions of economic income in Section 5.
7. Van Zijl and Whittington (2006), in attempting to provide a reconciliation between FV and DV, rightly argue that in order to be consistent with rational decision-taking current value must include the impact of related transactions costs.
8. Baxter (2003, p. 3) argued for caution against the intuitive sense that the advantage conferred by an asset is usually the higher of NRV or PV from future use (i.e. 'recoverable amount'). 'Our more familiar approach to value conjures up visions of benefits that would follow the acquisition of an extra asset. The deprival principle tells us to look instead at the disbenefits following the loss of an existing asset.' Hence, where RC is lower than recoverable amount, DV is RC. It may be objected that, if $PV > RC$ (or $NRV > RC$), the rational firm will surely have acquired every available asset and so there may not be a replacement asset ready to be acquired (or more generally, having equated marginal cost and marginal revenue, the last asset to be acquired must have $PV = RC$ so on deprival either PV or RC gives the DV). However, the widespread existence of long-lived assets for which $PV > RC$ indicates the prevalence of market imperfections such that firms generally have not been able to exhaust all opportunities for investment in assets earning more than RC (i.e. with positive NPVs or yielding 'abnormal earnings'), with the consequence that valuing them at FV will show an immediate gain of the kind that Nobes (2003) argues for. (Where replacement is indeed impossible, RC is effectively ∞ and then

DV is a correspondingly recoverable amount.) We shall argue that similar market situations prevail *mutatis mutandis* for performance obligations such that RV is RL and not 'obligation satisfaction'.

9. We also note that for corresponding financial assets, such as receivables, the DV is generally simply the (risk-discounted present value of) the amount due. The applicability of DV reasoning for traded financial instruments is analysed further in Macve and Jackson (1991).
10. This correct pattern is consistent with the graphical illustration on p. 35 of Baxter (1971) and is fully illustrated in Fig. 13.7 on p. 165 of Baxter (1975). The Appendix to Baxter (2003) on 'Depreciating Assets' does set out the value pattern correctly, albeit in a more simplified way targeted at practitioner readers.
11. Kulkarni (1980) does not consider 'performance obligations'. Baxter (2003, p. 14), with reference to a very early version of our current paper, says: 'If the balance sheet includes deferred revenue (as where a magazine publisher gets subscriptions in advance), measurement must probably be a crude compromise as the issues are complex.' He does not give any further analysis and this has motivated our paper to analyse these 'complex issues' and to argue that for these kinds of liability the RV 'mirror' does apply.
12. This situation has the attraction of being the mirror-image of the more commonly discussed accounting problems (e.g. for inventories or plant and equipment) where cost outlays occur first and revenues flow in later.
13. See again note 8 above. It may seem to make intuitive sense to say that the burden imposed by a liability is usually the lower of transfer value or settlement in due course (i.e. 'obligation satisfaction') but (mirroring assets *mutatis mutandis*) we need instead to focus on what opportunity relief from the current obligation will provide.
14. Further, more complex, examples showing how the basic approach is readily adapted to a wider range of possible situations are available from the authors on request.
15. In our simple illustration, we have assumed that the contract lasts a year and is initiated six months before the end of the accounting period. Our results clearly generalise regardless of whatever point of time during the accounting period the contract is initiated at. Moreover, if there are seasonal factors affecting the business, the allocations of revenue and costs to sub-periods can easily be adjusted from simple time allocation to reflect these as appropriate, as suggested in the Insurance Contracts exposure draft (IASB 2010a). Contracts of more than one year's duration would be handled by extension in essentially the same way (see further Appendix A).
16. In order to be able to handle positive interest rates consistently (see further Appendix B), whatever the accounting conventions adopted, we assume that in all cases Revrec distributes half the total profit on the contract by the end of the first accounting period, that is, 31 December, and the remainder during the following period by the end of the contract on the subsequent 30 June.
17. For simplicity, we assume here that there is no risk of Revrec's insolvency (cf. Horton and Macve 2000, Horton *et al.* 2007). We also do not discuss here whether the 'risk premium' should reflect the whole of the company's risk or only its 'systematic' risk (cf. IASB 2001, chap. 5): IASB (2010a) proposes to limit recognition of diversification effects to similar classes of insurance contracts.
18. Without loss of generality, we assume for illustration that the risk pattern is even throughout the period: alternative patterns could be accommodated where appropriate, as suggested in IASB (2010a).
19. Cooperative game theory is ideal for our purposes since it allows the business situation to remain unstructured, imposing no formal structure on the interactions between companies, thereby reinforcing the generalisability of our results.
20. If (c) is greater than (a) or (b) and is payable even where cancellation is at the customer's option there is a positive probability that the option will be exercised against the company, and here it may indeed be the most relevant value. However, the business is not sustainable as a going concern on this basis (i.e. if customers all act 'rationally'). Alternatively if contracts allow the company, at its option, to exit by paying less than CE/2 it would be rational to take this opportunity and this would represent RV – but again this is not a sustainable business model as customers collectively would be irrational to enter such contracts. (Further analysis of 'unusual' situations is available from the authors – e.g. Macve 2007.) Related issues about policyholder options have been discussed within FASB/IASB's insurance project in the context of a 'deposit floor' (FASB 2010).
21. As FV excludes transaction costs (b) should be sufficient to compensate another entity for taking over the contract and fulfilling it.
22. For example, in the case of insurance companies there may be prudential regulatory constraints inhibiting volume expansion through further price cutting. While the precise conditions would need fuller analysis in each case, it is sufficient here to recognise that this will be a common situation.

23. Note that an equivalent economic situation arises if Revrec believes its competitive advantage lies, not in being able to charge premium prices for its 'masthead/brand', but in being able to undercut competitors on cost efficiencies.
24. While the completion date of Revrec's contract may be clear, where there are ongoing obligations (e.g. product warranties or, as in the case of insurance contracts, delays between occurrence and settlement of claims) the enterprise may remain 'on risk' well beyond the initial contract period and the risk-bearing element of profit (if that can be separately identified) may only emerge during that run-off period.
25. This approach is consistent with the Boards' approach (e.g. IASB 2011) in categorising FV measurements at different 'levels' related to the availability of market evidence on prices. The paradox here for accounting standard setters is that it is only when values are not already readily obtainable from other reliable market sources that the accounting process may be seen to add incremental information content (e.g. Beaver and Demski 1979, Beaver 1998, Macve 2010b).
26. Under certainty, all future NPVs on the entity's anticipated business will logically be assigned to the opening accounts for the first period of its activities (Shwayder 1967). Under uncertainty, choice is needed of some 'critical event' that signals sufficient certainty of profit realisation (e.g. Johnson 1970, IASB 2010b, para. 4.48). In current UK life insurance company valuation practice, where the critical event is regarded by the industry as the sale of the policy, the corresponding distinction is between the 'embedded value' (of the existing book of contracts in force, which is accounted for) and the 'appraisal value' (which allows for the expected profitability of future contracts, which is not accounted for but is typically extrapolated from the reported figure for 'profit on new business' (e.g. Horton *et al.* 2007)).
27. Where there are no super profits, that is, the NPV is zero, the IRR (r) equals the interest rate (i). With super profits, when $i > 0$ (using variables as defined in Tables 1 and B1), the rate at which Revrec is borrowing remains negative as it still only requires Revrec to pay a total of £y to supply the customer with magazines, against an initial purchase price received of £$PV_{CF12,i} = \{CF/12 \times \alpha_{12,i}\}$. The super profit that emerges when $i > 0$ will then be the sum of interest earned (at i) on the assets acquired from the consideration received together with the 'unwind of the discount' on the liability (at r) as shown in Appendix B, Table B1, Solution 4.
28. As r is negative, to find r with the pattern in our example here (i.e. that starts with the initial inflow) requires equating the 'end' (or terminal) values (EV in the tables). $[-IntEV_{CE,1-6,r}]$ is then a positive amount of income. Where $i > 0$, the income also includes interest on the initial consideration received, that is, $[IntPV_{CF,1-6,i}]$.
29. The amounts of asset and liability in the beginning are both equal to £$PV_{CF12,i}$. The liability initially also equals £$EV_{CE12,r}$: thereafter asset and liability amounts diverge, with the liability only equal to £$EV_{CEn,r}$ (where n is the number of remaining months in the contract). See Tables 1 and B1 for definition of the other variables.
30. Indeed, given that Revrec starts with no net assets, it may be hard to explain how it earns 'a rate of return'. Moreover, in the general case, where companies also hold productive assets and inventories, or have incurred costs in advance of the contract, use of the IRR produces values for these (at accounting dates after initial recognition) which simply represent present values of future cash flows discounted at r and so do not represent DVs and are inconsistent with any available market values (Baxter 1975). Insurance companies have argued for continuing the current convention to account for their contract acquisition costs as an asset – 'deferred acquisition costs' (DAC). Our analysis supports this in so far as the DAC may represent DV at initial recognition (as 'deprival' would require spending the same amount again). However, spreading on the basis of IRR over the contract life would destroy this relationship of balance sheet amounts to DV at subsequent accounting dates.
31. A similar objection applies to other proposed 'economic' allocation methods such as 'Earned Economic Income' (Peasnell 1995a, 1995b: cf. Grinyer 2000).
32. Clearly if Revrec charges a higher initial annual magazine subscription/insurance premium for providing this guarantee against any price rise, the embedded option premium would need to be matched against the recognition of any such loss or gain from price changes. (On options in DV/RV see Stark 1997.)
33. We use here the terms sustainable, maintainable and persistent interchangeably.
34. To overcome this problem would require the recognition and capitalisation of all future super profits, on which a sustainable income would then be reported equal to 'interest on capital' plus reward for risk bearing.

35. Except when the company is able to write an equal number of similarly profitable contracts in each accounting period. As illustrated under Table 1, Solution 3dv(b), if internal goodwill is capitalised, a similar problem would arise even if DV/RV is adopted as the basis of measurement. The danger lies in any failure by analysts (or other users) to understand the true nature of these 'Day 1' super profits and their relationship to future earnings. This implies that full disclosure of the significance of this profit element is needed, in the way that UK life insurers assist analysts in their supplementary MCEV reporting by highlighting the 'profit on new business', which is conceptually equivalent to the NPV in new contracts written (see Horton *et al.* 2007, Serafeim 2011 for further discussion).
36. Strictly one cannot discuss the liability on an individual policy as insurance relies on the pooling of risks across substantial populations of policyholders: but we can still scale down the resulting statistical expectations in considering our simple 'typical' policy example, as argued by IASB (2010a).
37. Examples and solutions extended to include acquisition costs, and showing that the traditional accounting approaches can similarly be reconciled with a RV valuation of the policy liabilities, are available on request from the authors.
38. The Boards differ over how far interest on these margins should be recognised (FASB 2010).
39. That table also shows how the accounting in the other solutions in Table 1 would correspondingly be adjusted. The full workings for Table B1, and also for a number of additional scenarios, are available from the authors on request. (For simplicity of illustration, we assume immediate distribution of any monthly profits to avoid further interest effects.)
40. We assume competitive capital markets such that borrowing and lending are available on the same terms to all participants. One per cent per month, with monthly rests, is equivalent to $((1.01)^{12} - 1) * 100\%$ per annum, that is, 12.6825% per annum. An annuity of 12 instalments of £9.50 per month at 12.6825% p.a. has a present value of £9.50 * 11.25508 = £106.92326, say £107.
41. The bookkeeping is [opening liability £106.92 + unwind of discount £5.14 = £112.06, less reduction equal to revenues for six monthly magazine issues £57 = remaining liability £55.06]. Equivalently for the asset (the customer's deposit) as the costs are spent. Full workings for the bookkeeping for arithmetical illustrations of all the situations covered in Table B1, and also for a number of additional scenarios, are available from the authors on request.

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Appendix A. Insurance contracts

The IASB's project on insurance began with the IASC in 1997 and has remained extremely controversial. FASB later joined the project and, although IASB has issued an ED (IASB 2010a), the two Boards have not yet reached full agreement. However, as we have argued here, insurance contracts, far from requiring some special treatment, also fit the general case of RV recognition, which will be equivalent to the conventional 'deferred revenue'/'unearned premium' (at least until prices change). Assume Insrec Corp. issues one-year insurance policies on similar terms to Revrec Corp., so that for a typical policy Insrec receives the year's premium in advance on 1 July, and expects to pay claims and other related costs of £$y/12$ at the end of each month,[36] while requiring a risk premium for the uncertainty inherent in its estimates of £$RP/12$ per month. Clearly, a one-year policy where the policyholder pays in advance is structurally similar to the general case that we have been considering.

Acquisition costs are normally paid by insurance companies and, under conventional GAAP, have traditionally been deferred and amortised against premium income.[37] 'Unearned premiums' will conventionally be carried as a liability in Insrec's balance sheet at the 31 December accounting year-end (in the simplest case through simple time-apportionment between accounting periods, or more sophisticatedly by taking account of any variation in the pattern of insurance risk across the policy year). Clearly, in a situation where Insrec's product is fully competitively priced, these unearned premiums will represent no more than Insrec's liability to pay the remaining expected claims and other related costs, together with provision for risk bearing. However, as we have already seen in Revrec's case, if Insrec is able to charge a premium which more

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than covers all costs that have been or are expected to be incurred, its provision for 'unearned premiums' will exceed its estimates for claims and related costs still to be recognised plus the risk premium. Insrec will have an NPV that could be recognised as 'profit on inception of the contract' under the asset/liability approach.

Therefore, we may legitimately equate Insrec's insurance policy with other commercial arrangements with customers, such as Revrec's magazine contract.

In its Discussion Paper (IASB 2007b), IASB favoured the 'current exit value' approach, which it could not distinguish from FV. Current exit value would generally only produce the same result as practice under traditional UK/US/international GAAP if insurers face perfectly competitive markets – or are able to treat as policy acquisition costs all investment in brands, reputation, etc. that has given them any competitive advantage. In the real world, substituting FV represents an implicit decision to accelerate the pattern to be adopted for reported realisation of the insurer's 'brand value' and other intangibles. FASB (1999, paras. 166–167) smuggled in the same implicit decision on revenue and profit recognition.

In their exposure of the IASB's insurance ED (2010a) the Boards decided to go back to the more traditional view and propose 'plugging' the measure of the liability with a 'residual margin' (IASB), or 'composite margin' (FASB), in order to eliminate any 'Day 1' profit recognition and spread the profit on a systematic basis over the life of the contract.[38] In doing so they have not been able to explain conceptually how the resulting balance sheet liability at subsequent dates represents a current value. We have argued here that our RV approach fulfils this requirement while being consistent with the profit measurement approach espoused by the Boards.

However, for long-term insurance contracts both Boards want the presentation of the income statement to depart from the traditional 'premiums less claims and expenses' approach and to report instead the margins being earned and variations in these due to experience gains and losses and revisions of assumptions (with the premiums, claims, etc. relegated to note disclosures). But our analysis here can readily be extended to long-term ('life') insurance contracts. In the case of 'single premium' contracts we merely have to extend the period over which the contract is in force with corresponding liability measurements being required at each accounting date. Where premiums are paid annually under 'level term' contracts, policyholders initially pay more than the amount required to cover each year's risk, and in the later stages of the policy pay less than this, which provides them with an economic incentive (in addition to maintaining guaranteed insurability) to continue the contract, and gives rise to a similar accounting problem of how to recognise 'deferred revenue'. Therefore, the timing of payment is not crucial to the argument. Our argument therefore supports maintaining the traditional form of income statement presentation, albeit with some additional elements as in our examples in Tables 1 and B1, together with elements for changes in prices and assumptions as discussed in Section 4.

Appendix B. Accounting for interest effects

Conventional microeconomics recognises that capital must earn its required rate of return and this is as much a cost of production as materials, labour, use of equipment, etc. Capital is rewarded both for time between investment and return ('interest') and for risk bearing. Our simple numerical examples in Table 1 assume an interest rate of zero. Here we show how this will change if the interest rate is greater than zero, based on Solution 1 (i.e. not allowing for risk), for consistency labelled Solution 1 in Table B1.[39]

Solution 1 (now with interest rate > 0)

Assume interest is $i\%$ per month. As production etc. costs are £$y/12$ per issue, and a year's subscription covers 12 issues, therefore the competitive price for a year's subscription paid in advance is now the amount equivalent in present value to 12 future monthly receipts of £$y/12$ each, namely

$$\pounds\left\{\mathrm{PV}_{y12,i} = \frac{y}{12}\left[\frac{1}{i} - \frac{1}{i \times (1+i)^{12}}\right] = \frac{y}{12}\alpha_{12,i}\right\}$$

giving a 'discount' of £$\mathrm{D}_{y,12} = (y - \mathrm{PV}_{y12,i})$ to the customer for paying annually instead of individually for each instalment as it is delivered. Assuming the customer has therefore initially paid £$\mathrm{PV}_{y12,i}$ on 1 July, then at 31 December the conventional accounting allocation of the revenue under present-day GAAP would normally be half to each six-month period, that is, £PVy12,$i/2$, while both the cost to date and the 'liability to produce and deliver 6 more issues' appear prima facie to be £$y/2$, indicating a loss of £$\mathrm{D}_{y,12}$ (i.e. making provision now for the loss to come in the second six months). Therefore, we need to recognise the interest effect in the accounting and then there will be no conflict between the 'revenue recognition' and the 'asset/liability' approach. Earned revenue to 31 December in total is the price of the first six instalments, plus interest on the assets held to date – which is ($\text{IntPV}_{y,1-6,i} = \sum_{1}^{6} i \times \text{PV}y$) – that is, earned revenue totals £$y/2$ + £$\text{IntPV}_{y,1-6,i}$. Expenditure is the cost of the first six instalments plus interest (i.e. 'unwind of the discount' on the liability) to date, that is, £($y/2$ + £$\text{IntPV}_{y,1-6,i}$), which again gives the standard 'competitive' result of an overall net income of zero. As all the finance has been provided by the customer, and here there is no risk, the equity owners have contributed nothing and have correspondingly earned nothing. The year-end liability is the remaining obligation to incur the second six months costs of £$y/12$ per month, which is now not simply £$y/2$ but the present value £$\text{PV}_{y6,i} = y/12 \times \alpha_{6,i}$.

With our illustrative numbers, where production etc. costs are £9.50 per month, and assuming an interest rate of 1% per month,[40] the customer's discounted up-front payment is £9.50 $\times$ $\alpha_{12,0.01}$ = £106.92, which is the initial RV. Interest accrues monthly on this gradually reducing initial liability, giving a total 'unwind of discount' as an extra cost of £5.14 in the first six months. In the first six months revenue from the magazine is £57 (the same as in Table 1, Solution 1) and by 31 December the liability is down to £55.06 (as compared to £57 in Table 1, Solution 1), comprising a provision for the present value of the expected remaining production costs to be incurred, or equivalently the present value of the second six months' deferred revenue. Revrec will have had to call off from the customer's initial deposit an amount equal to the production cost of £9.50 as each of the first six monthly issues was produced; but they will have earned interest on the gradually decreasing balance of that deposit, also amounting to £5.14.[41] Therefore, the first six months' net profit is zero. If everything goes to plan in the second six months, the pattern will be repeated (but with the amounts of offsetting interest both lower) and Revrec will earn a net profit of zero overall for the financial year.

So including interest brings no conflict between the 'asset/liability' and 'revenue recognition' approaches and, as Table B1 illustrates, this also holds for all the other scenarios considered in the main paper.

This analysis is consistent with the IASB's approach (2010a) of proposing that interest be accrued on all elements of the provision for insurance contracts, including the residual margin in insurance contracts, as against FASB's rejection of this (2010) – see Appendix A.

Table B1. Recrev Corporation: example as in Table 1 but with interest rate > 0%.

Income statement year 1 (six months)

Solution		Magazine revenue £	Income other (NPV/recycling) £	Income other (interest on assets) £	Costs £	Costs amortisation of NPV/goodwill/DAC £	Costs other ('interest'/'unwind of discount') £	Profit (Jul–Dec) Year 1 £	Profit (Jan–Jun) Year 2 £
1		$y/2$	–	$\mathrm{IntPV}_{y,1-6,i}$	$y/2$	–	$\mathrm{IntPV}_{y,1-6,i}$	0	0
2		CE/2	–	$\mathrm{IntPV}_{\mathrm{CE},1-6,i}$	$y/2$	–	$\mathrm{IntPV}_{\mathrm{CE},1-6,i}$	RP/2	RP/2
3	Either (a)	CF/2	–	$\mathrm{IntPV}_{\mathrm{CF},1-6,i}$	$y/2$	–	$\mathrm{IntPV}_{\mathrm{CF},1-6,i}$	$(\mathrm{RP} + \xi)/2$	$(\mathrm{RP} + \xi)/2$
	or (b)	CF/2	$\mathrm{PV}_{\xi 12,i} - (\xi/2)$	$\mathrm{IntPV}_{\mathrm{CF},1-6,i}$	$y/2$	–	$\mathrm{IntPV}_{\mathrm{CE},1-6,i}$	$\mathrm{PV}_{\xi 12,i} + (\mathrm{RP}/2) + \mathrm{IntPV}_{\xi,1-6,i}$	$(\mathrm{RP}/2) + \mathrm{IntPV}_{\xi,7-12,i}$
	or dv(a)	CF/2	–	$\mathrm{IntPV}_{\mathrm{CF},1-6,i}$	$y/2$	–	$\mathrm{IntPV}_{\mathrm{CF},1-6,i}$	$(\mathrm{RP} + \xi)/2$	$(\mathrm{RP} + \xi)/2$
	or dv(b)	CF/2	$\mathrm{PV}_{\xi 12,i}$	$\mathrm{IntPV}_{\mathrm{CF},1-6,i} + \mathrm{IntPV}_{\xi,1-6,i}$	$y/2$	$\xi/2$	$\mathrm{IntPV}_{\mathrm{CF},1-6,i}$	$\mathrm{PV}_{\xi 12,i} + (\mathrm{RP}/2) + \mathrm{IntPV}_{\xi,1-6,i}$	$(\mathrm{RP}/2) + \mathrm{IntPV}_{\xi,7-12,i}$
4		CF/2	$-\xi/2$	$\mathrm{IntPV}_{\mathrm{CF},1-6,i} - \mathrm{IntEV}_{\mathrm{CE},1-6,r}$	$y/2$	–	–	$(\mathrm{RP}/2) + \mathrm{IntPV}_{\mathrm{CF},1-6,i} - \mathrm{IntEV}_{\mathrm{CE},1-6,r}$	$(\mathrm{RP}/2) + \mathrm{IntPV}_{\mathrm{CF},7-12,i} - \mathrm{IntEV}_{\mathrm{CE},7-12,r}$

Balance sheet 31 December year 1

Solution		Assets: cash £	Other DAC/goodwill £	Total assets £	Liabilities: contract £	Equity (undistributed profit) £	[Assumes half total profit distributed to date =] £
1		$\mathrm{PV}_{y6,i}$	–	$\mathrm{PV}_{y6,i}$	$\mathrm{PV}_{y6,i}$	–	0
2		$\mathrm{PV}_{\mathrm{CE}6,i}$	–	$\mathrm{PV}_{\mathrm{CE}6,i}$	$\mathrm{PV}_{\mathrm{CE}6,i}$	–	RP/2
3	Either (a)	$\mathrm{PV}_{\mathrm{CF}6,i}$	–	$\mathrm{PV}_{\mathrm{CF}6,i}$	$\mathrm{PV}_{\mathrm{CF}6,i}$	–	$(\mathrm{RP} + \xi)/2$
	or (b)	$\mathrm{PV}_{\mathrm{CF}6,i}$	–	$\mathrm{PV}_{\mathrm{CF}6,i}$	$\mathrm{PV}_{\mathrm{CE}6,i}$	$\mathrm{PV}_{\xi 6,i}$	$(\mathrm{RP} + \xi)/2$
	or dv(a)	$\mathrm{PV}_{\mathrm{CF}6,i}$	–	$\mathrm{PV}_{\mathrm{CF}6,i}$	$\mathrm{PV}_{\mathrm{CF}6,i}$	–	$(\mathrm{RP} + \xi)/2$
	or dv(b)	$\mathrm{PV}_{\mathrm{CF}6,i}$	$\mathrm{PV}_{\xi 6,i}$	$\mathrm{PV}_{\mathrm{CF}6,i} + \mathrm{PV}_{\xi 6,i}$	$\mathrm{PV}_{\mathrm{CF}6,i}$	$\mathrm{PV}_{\xi 6,i}$	$(\mathrm{RP} + \xi)/2$
4		$\mathrm{PV}_{\mathrm{CF}6,i}$	–	$\mathrm{PV}_{\mathrm{CF}6,i}$	$\mathrm{EV}_{\mathrm{CE}6,r}$	$\mathrm{PV}_{\mathrm{CF}6,i} - \mathrm{EV}_{\mathrm{CE}6,r}$	$(\mathrm{RP} + \xi)/2$

Solution 1 assumes interest rate $i > 0$, but no risk. Total profit on contract is [£0].
Solution 2 assumes both risk and interest rate > 0. Total profit on contract is [£RP].
Solution 3 assumes also super profit ξ. Total profit on contract is [£(RP + ξ)].
Solution 4 reflects IRR = r, where $\xi > 0$, such that $\mathrm{PV}_{\mathrm{CF}12,i} = \mathrm{EV}_{\mathrm{CE},12,r}$. Total profit on contract is [£(RP + ξ)].
As r here is negative so at 31 December $\mathrm{EV}_{\mathrm{CE}6,r} > \mathrm{PV}_{\mathrm{CE}6,i}$ and over the contract total super profit $\xi = \mathrm{IntPV}_{\mathrm{CF},1-12,i} - \mathrm{IntEV}_{\mathrm{CE},1-12,r}$. The solutions are equivalent, *mutatis mutandis*, for the case of the insurer ('Insrec Corporation'), where 'magazine revenue' is 'premium income'. Variables (in addition to those defined in Table 1) – $\alpha_{n,i}$: annuity factor for n periods at interest rate i; $\mathrm{PV}_{x,n,i}$: present value of annuity with n cash flows x, discounted at interest rate i; $\mathrm{IntPV}_{x,\gamma-\beta,i}$: sum of interest charged on the present value of x from time point β until γ at interest rate i.

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On relief value (deprival value) versus fair value measurement for contract liabilities: a comment and a response

CHRISTOPHER NOBES*

School of Management, Royal Holloway, University of London

Horton, Macve and Serafeim (2011) (HMS) argue for the use of relief value for the measurement of certain types of liabilities, and that the replacement liability (an entry price) is normally the appropriate measure of relief. I had previously argued elsewhere for an exit price (normally, the performance value, PV). In this paper, I first try to clarify the terminology used, and then I show why PV rather than RL is usually appropriate for the industries in HMS' example and for some others. My scope is more modest than that of HMS because I do not address revenue/profit issues, which I think should be dealt with separately.

Keywords: deprival value; exit value; fair value; liabilities; relief value

(Editor's note: I invited Professor Nobes to contribute this comment as an indication of the depth of discussion that is raised by a fundamental accounting issue such as the measurement of liabilities. It is my hope that reading this paper, in conjunction with that of Horton, Macve and Serafeim, encourages further contributions to exploring and defining fundamental principles of accounting.)

1. Introduction

Horton, Macve and Serafeim (2011)(hereafter HMS) argue with style and clarity for relief value (RV) instead of fair value (FV) to be applied in the measurement of contract liabilities. RV is the analogy for liabilities of the better known 'deprival value' model for the measurement of assets. HMS conclude that the normal measurement basis under RV, at least for some types of liabilities, should be the replacement liability (i.e. the amount that the entity would receive now if it replaced the liability with something equivalent). They note that this puts them into conflict with, *inter alios*, Nobes (2003), who argued for measurement of liabilities at an exit price, not at an entry

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*Email: chris.nobes@rhul.ac.uk

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price. This present paper is a 'reply' to HMS. This paper contributes by suggesting improvements to the specification of the RV model, and by showing that the replacement liability is not usually the relevant measure of relief value for HMS' example companies or for some others. It proposes that liabilities should generally be shown at the lowest of three exit values, which will usually be the performance value (the discounted future net cash outflows).

2. Starting point of agreement

In addition to admiring HMS' elegance of exposition and the logic of their algebra, I agree with the major point in HMS' *Abstract*:

> 'Revenue recognition and measurement principles can conflict with liability recognition and measurement principles.'

I also agree that, even after adopting RV reasoning, 'major conceptual difficulties still require resolution' (HMS, section 1) before profit recognition would be clear. HMS accept in places in their paper that liability measurement need not be tied to profit measurement, but generally they bring revenue thoughts into their arguments about RV because their ultimate focus is on revenue recognition. Connecting the issues is certainly not surprising, given that the *Framework's* definition of income (para. 4.25) is expressed in terms of a change in net assets. I regret that, at one point (Nobes 2003, p. 23), I also connected the two issues. However, as HMS show (for much of the second half of their paper), the recognition and measurement of profit involve the consideration of many issues other than just the size of the liability. I, therefore, suggest that we should start by addressing the issue of the appropriate measurement of a liability without considering revenue recognition. Once liability measurement has been resolved, then the issue of whether initial and subsequent measurement of a liability should be seen as creating revenue, performance, etc. can be addressed elsewhere.

I also agree with HMS that fair value (FV) is not conceptually a suitable measurement basis for most liabilities. In Nobes (2003, p. 69), I argued in favour of an exit price but not FV; I did not even consider FV to be an exit price as subsequently promulgated by the IASB in IFRS 13.

3. The components of relief value

HMS (section 2) set out the RV model (from Baxter 1975, Kulkarni 1980) as:

$$\mathrm{RV} = \mathrm{Max}\ [\mathrm{RL};\ \mathrm{Min}\ (\mathrm{PV};\ \mathrm{NTV})].$$

I suggest that these components are expressed somewhat misleadingly and are not exhaustive. The RL is the amount of 'replacement liability' that would be taken out to replace a liability that had disappeared. For contracts, this would be the consideration that would be received as a result of a replacement contract. Contrary to HMS' summary of the model, this should be measured net of transaction costs, i.e. as HMS later[1] make clear, the RL is the net proceeds that would currently be obtained from the same contract. This is the amount by which the entity would be better off. The analogy for assets in the deprival value (DV) model is replacement cost (grossed up by costs of acquisition), which is the amount that the entity would be worse off if, as a result of being deprived of an asset, the entity replaced it. Therefore, I adopt the term 'current net replacement consideration' (CNRC).

Other writers have set out the model showing historical consideration instead of current consideration. Lennard (2002, p. 10) has 'consideration'[2] and the Public Sector Accounting

Standards Board has 'assumption price' (IPSASB 2010, p. 32). Both of them realise that they are departing from the model, but note problems with the use of current consideration (Lennard 2002, Appendix B; IPSASB 2010, p. 35), to which I will turn later.

The PV is the performance value: the discounted net cash outflows expected to be needed to satisfy the obligations as they fall due. HMS' remaining element is the NTV (net transfer value), but I think that that is not a good term for what HMS intend.[3] It would be better called the GTV (gross transfer value), i.e. the amount that the entity would have to pay a third party to take the liability away, *plus* the costs of doing this. That is the proper analogy for the net realisable value of an asset, as HMS later explain.[4] These are the amounts by which the entity would be worse/better off if it settled/sold the liability/asset. So, when HMS say that RV, like DV, is bounded by 'current (gross) replacement price and current (net) exit price' (section 2), I suggest that the 'gross' and the 'net' are the wrong way round for the RV model.

Fair value does not appear in the RV model (nor in the DV model) but, presumably, the FV of the contract would be the transfer price, i.e. the amount that a willing seller at arm's length would have to pay to dispose of the liability (the GTV minus the transaction costs).[5] The basic argument in favour of FV is that it embodies current expectations about the future outflows associated with a liability from the perspective of market participants (FASB 2006, para. C2). However, the RV model only considers this relevant when the entity is expecting to encounter the market, whereupon GTV would be the appropriate measure.

HMS' formulation of the RV model leaves out one relevant possibility: the gross cost of release (GCR) that would have to be paid to the specifically contracted party (e.g. to the customer, in the case of an incomplete contract) to cancel the entity's liability. This possibility comes up later in HMS' discussion (see below). Kerr (1981, p. 232) called this the 'net redeemable value', apparently making the same mistake about 'net' and 'gross' as discussed above. The GCR could be regarded as a special case of the gross transfer value (i.e. the GCR involves transferring cash to one particular party rather than to any market participant). On the other hand, the contract still runs in the case of GTV but not in the case of GCR. After disposing of the liability, this difference would not affect the entity but it is useful to separate the two measures because, in imperfect markets, the GCR might be different from the GTV. So, I suggest that a more complete formulation would be: RV = Max [CNRC; Min (PV; GTV; GCR)].

Incidentally, these three possibilities for the exit value are consistent with the conclusion arrived at in an abandoned IASB exposure draft on provisions (IASB 2010, para. 36B). They were also noted by Napier (2007, p. 345) as possibilities for valuing pension obligations. The analogy to GCR for assets would be the net amount that would be received from a specific contracted party when disposing of an asset (e.g. a debenture), as opposed to the net selling price in a market. This analogy does not generally turn up in deprival value models; perhaps because it would rarely be relevant in practice, especially for the type of physical assets that DV models tend to focus on.

Figure 1 shows a diagram of the relief value model. Under each of the four possible measures, I show the various terms that have been used (generally for the same concept), starting with the one that I prefer, in each case. IPSASB (2010, para. 5.38) use 'cost of release' to mean whichever of my GTV or GCR is lower. HMS (section 2) provide useful warnings about over-reliance on the diagram.

4. Identifying the relief value

Let us assume, for the moment, that relief value is the right concept for arriving at the measure of a liability. We now need to identify the particular measurement basis that this would lead to in various cases. Let us start with HMS' example of a magazine publisher, Revrec, which receives cash in advance from customers for a supply of magazines. Let us further assume the likely case

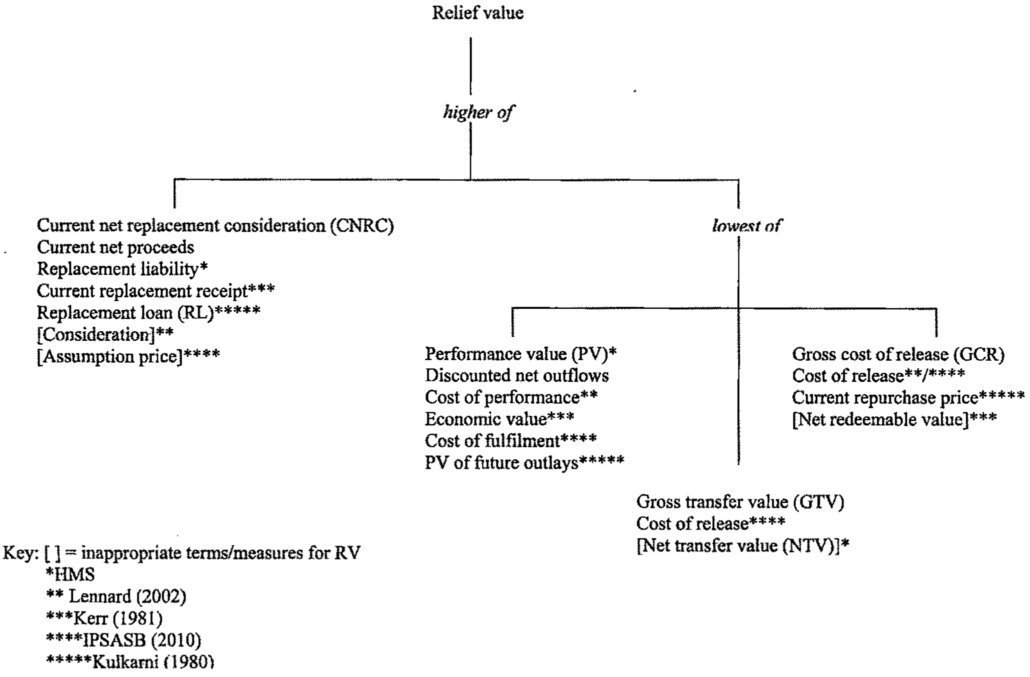

Figure 1. Summary of relief value model and terms.

of less than perfectly competitive markets. HMS initially suggest (section 3.2) that three measures of the liability might be possible: (a) the replacement consideration (RL); (b) the cost to perform (PV), i.e. the expected outflows including the cost of risk-bearing and interest; and (c) the cost of release, i.e. the amount that a customer would have to be paid to accept cancellation of the contract. HMS suggest (section 3.2) that (c) would 'appear to be' the same as (a). However that seems unlikely to be universally true. In the case of Revrec, perhaps customers would be satisfied with the return of the historical consideration, rather than the current replacement consideration (if different).[6] For more specialist contracts (e.g. for construction), some customers might now regret having signed the contract and would be happy to receive a small refund; others would be seriously aggrieved if a contract were cancelled and could only be bought off at great price (once costs are included). In what follows, I will assume that (a) and (c) are different. Incidentally, we should note that, unlike in their initial exposition of the RV model (as discussed in the previous section), HMS now treat (c) as the specific cost of release rather than as the market transfer value; i.e. in my terms, they now refer to GCR rather than to GTV.

Let us take a numerical example of these measures as in Table 1, assuming that the customer has paid in full in advance, and that the work has not yet started. As well as imperfect markets, I am also assuming that market contract prices have risen since the contract was signed. HMS argue that the cost of release (£110 in Table 1) 'does not therefore seem to be a relevant amount on a 'going concern' basis' because 'Revrec would plan to perform rather than cancel' (section 3.2). I agree, and I agree with their choice of relevance as a criterion. Presumably, HMS would therefore also reject the cost of transfer to another contractor (£105) in this case, because it is also above the cost to perform, so it will not be incurred. Of the remaining three measures of the liability, conventional accounting and Lennard (2002) would normally choose[7] the historical consideration received (£100); HMS would normally choose the current

Table 1. An example of an incomplete contract.

Consideration received (the historical net proceeds)	£100
Cost to perform the contract (PV)	£90
Gross cost of release from contract (GCR)	£110
Gross cost to transfer contract to another contractor (GTV)	£105
Current net replacement consideration (CNRC)	£120

replacement consideration (£120); and I would normally choose the cost to perform (£90), as explained below.

The argument against measuring the liability at the consideration received (actual net historical proceeds) is similar to the argument against using historical cost to measure an asset: it does not represent the outflows expected, or the market value of the burden, or any other decision-useful number. There is therefore no space in the RV system for the historical consideration, just as there is no space for historical cost in the system of deprival value for assets (see, for example, Kerr 1981, p. 230). HMS, also, do not include[8] historical consideration, because it does not correspond to any action that the entity could take. Readers of HMS might get the impression (e.g. section 2, section 3.2) that they agree with Lennard (2002) but, on this key point, that is not the case.

Nevertheless, arguments can be made in favour of initially measuring the contract liability at historical consideration, as follows. First there is the analogy with assets. Many assets (e.g. inventories or buildings) are conventionally measured on a historical cost basis unless there is an unpleasant surprise (now called impairment) that involves the relevant exit value (i.e. the highest one)[9] falling below the historical cost basis. By analogy, some contract liabilities are measured on a historical proceeds basis unless there is an unpleasant surprise that involves the relevant exit value (i.e. the lowest one) rising above the historical proceeds basis.[10] The arguments in favour of normally measuring at historical cost/proceeds include simplicity, verifiability and the avoidance of the uncomfortable[11] day-one gains or losses that arise when initial recognition of an asset/liability is at a different amount from cost/proceeds. However, these arguments have nothing to do with DV/RV models.

Of the five measures that we started with, both HMS and I would discard the GCR, the GTV and the historical consideration as the normal measure of the relief value of a contract liability. Two candidates remain: the current net replacement consideration (CNRC or RL) and the cost to perform (PV). Incidentally, both of these measurement bases can involve major practical problems. Just as an asset's replacement cost might have to be measured as a part of a modern equivalent asset (because the asset is partly used up and because the exact asset can no longer be bought), so a liability's replacement consideration might have to be measured as a percentage of a modern equivalent contract (because the contract is partly performed and because the exact contract is no longer issued). HMS discuss part performance. For PV (as for the value in use of an asset), there are of course the problems of estimating the future cash flows and of choosing the discount rate.

However, let us return to the theory in an attempt to choose between CNRC/RL and PV as the usual relief value. A contractor faces one of two conditions: (i) optimal capacity (i.e. it has 'already taken on as many such contracts as can be handled while adding to profits' (as indicated in HMS, section 3.2), or (ii) less than optimal capacity. HMS assume that the contractor is at optimal capacity so that, if a contract were lost, a new one would replace it, but that otherwise the new contract could not be taken on. Therefore, the RV is the consideration that would be received for a new contract. However, in imperfect markets, do contractors universally, or even normally, operate at optimal capacity?

HMS' two example firms are Revrec (that produces magazines) and Insrec (that offers non-life insurance). Would it be normal for a magazine producer to have to turn cash-carrying potential customers away because of a capacity constraint? Would it be normal for an insurance company to turn cash-carrying potential customers away because of a capacity constraint? In both cases, I think not. Surely, it is not common for a magazine producer to be limited by some legal or physical constraint that would stop it selling to one more customer. It has presumably already sold as many as it can at the current price. Further, given a low marginal cost, it might generally deliberately print more copies than it expects to sell. So, there are always spare (virtually marginally costless) copies waiting for any marginal extra customer who is prepared to pay the going rate. Cancellation by one customer would not be the necessary event needed to take on a new contract at the current price. In the insurance industry, one can see the possibility of a legal constraint on volume affecting a company but, in practice, how many insurance companies in any particular year face such a constraint at the margin? This is an empirical matter, but I suspect that the answer for insurance companies, for example, is that it is rare (although Macve and Gwilliam (1993) show that capacity restraints apply in the case of Lloyd's of London).

Consequently, both Revrec and Insrec would usually be willing and able to take on more contracts at the margin at the ruling price. So, if they lost any particular contract, that would not cause them to be able to replace it with another, so the current consideration is not relevant. It would have been relevant (in the RV model) if HMS' assumption of optimal capacity were often realistic for companies such as Revrec and Insrec, but this seems unlikely.

Let us take a further example from a different industry. Suppose that a new airline, Pomair, is set up to specialise in scheduled flights between London and Sydney. It expects to run at a 75% load on average (British Airways ran at 73.5% in 2010).[12] Pomair prices seats at £1,000 each when booked more than two months in advance, but at £1,500 when booked within two months of take-off, except that the price falls to £500 within one week of take-off in order to try to sell the remaining seats.

For a particular flight, which could carry 400 passengers, Pomair has sold 300 seats by the two-month cut-off, receiving £300,000. This will more than cover the performance cost of operating the flight (say £250,000), which is largely independent of load. The price of a newly booked seat now rises to £1,500. So, the current replacement consideration of the 300 existing contracts rises from £300,000 to £450,000. Under the standard relief value model, this is the RV.[13] But is it relevant? If one of the old £1,000 contracts were lost would Pomair, as a result, be released from a constraint and only then be able to take on a new £1,500 one? No. So, does the total burden of the contracts rise from £300,000 to £450,000? No. This would also require an assumption that all the previous seats could be sold again at £1,500 each. This seems unlikely; the price would probably have to fall. Also, how would one assess the likelihood, and how would one take it into account in measuring the total contract liabilities? Incidentally, would Pomair's burden plummet when the price eventually falls to £500 per seat? No, but now the RV model would sensibly switch to the higher cost of performance.

To summarise so far, I suggest that the normal condition faced by Revrec, Insrec and Pomair is not optimal capacity. Therefore, the RV is not the current replacement consideration (RL).

What would the entities do if relieved of a contract (or of all the contracts, in the case of Pomair)? The answer is that they would not thereby be able to sign a new contract at current prices (because they were already trying to sell as many contracts as possible at the going price) but would be saved the cost of performance (or transfer or cancellation, if lower). So, I conclude that the RV should be measured as whichever of the three exit values (PV, GTV or GCR) is the lowest.

A potential example of optimal capacity might be a specialist submarine manufacturer (Yellowco), which can only take on two contracts at a time. If it has one contract and is eagerly looking for another, then HMS' logic seems not to apply (as above). However, suppose that it has two contracts (optimal capacity). HMS' logic might then apply. Nevertheless, suppose that there are very few potential customers for submarines. If Yellowco were relieved of a contract, it would then not necessarily be able to find another at the same price for many months or years. So, again, it is not clear that the 'replacement liability' logic is relevant. Perhaps another example of optimal capacity would be an oversubscribed university degree programme for which applicants had paid full fees of £9,000 as non-refundable deposits in advance. I suggest, though, that these are special cases upon which one should not base a general accounting standard for the measurement of performance liabilities.

5. Other types of liabilities

A further argument against the use of replacement consideration to measure performance liabilities is that it is not used (and cannot be used) for several other types of liabilities. HMS note that Baxter (2003) had doubts about applying RV to a company's debentures, as did Kulkarni (1980). Hence HMS confine their discussion to a particular type of contract: performance liabilities such as contracts with customers. Incidentally, this means that HMS' title (which refers to 'contract liabilities') is too wide, as is their suggestion that 'this argument is of general application to all kinds of business contracts'.

Similarly, provisions and post-retirement employee benefits are excluded. These are currently measured at cost to perform (IAS 37.45 and IAS 19.54).[14] Like Revrec's liability, they result from contracts (or at least from 'obligating events', IAS 37.10). However, it is difficult or impossible to measure the historical consideration; *a fortiori* the replacement consideration. If these various types of contract liabilities cannot be measured at replacement consideration, then why should other contract liabilities be? Deferred tax, if indeed it is a liability (Weetman 1992, Nobes 2003, p. 30), also does not fit into a replacement consideration approach.[15]

6. Conclusion: the sinking of HMS Replacement Liability?

The opening line of HMS' 'conclusion' (section 6) is:

> 'Will the 'asset/liability' approach produce reported earnings patterns of better quality than the 'revenue recognition' approach?'

This conflation of the two issues (which is inevitable given the objective of HMS' paper, and which I have made myself in the past) is distracting when trying to find a relevant[16] measure for liabilities. Concern, for example, that a particular initial measure of a contract liability might give rise to a day-one profit should not hamper the search for the right measure of the liability; certainly not at the theoretical level in a system which makes the definition of 'income' subservient to that of 'liability'. Even if revenue measurement were tied to liability measurement, we cannot tell whether my own suggested usual measure of a liability (PV) would often lead to day-one profits until discussing the discount rate.[17] So, I confine myself here to a more modest scope than do HMS: choosing between different bases for measuring liabilities.

HMS conclude in favour of relief value (RV) rather than fair value for the measurement of liabilities. I agree with this, but not with the standard model of relief value. HMS and I part company on what the appropriate measure of RV should normally be for performance liabilities. HMS propose current replacement consideration. I suggest that this is not normally appropriate for real performance liabilities because, for some contractors who are at optimal capacity and for all contractors at sub-optimal capacity, replacement consideration is not relevant.[18] So the standard RV model usually leads to the wrong result. I suggest a revised model, as in Figure 2. As before, HMS' warnings about over-reliance on the model should be heeded.

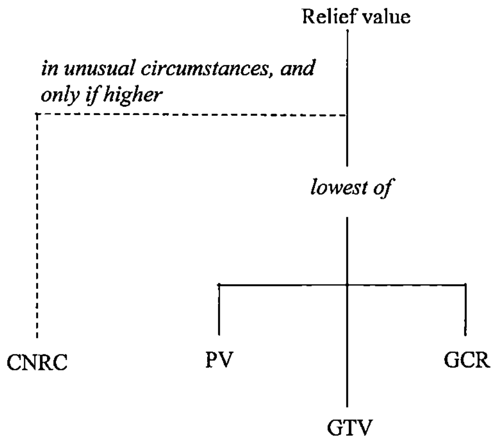

Figure 2. Proposed relief value model.

In practice, it would be hard to isolate optimal-capacity contractors from others and then to isolate those optimal-capacity contractors for whom replacement consideration (RL or CNRC) would be relevant. Therefore it is impractical to write an accounting standard that sometimes required the use of replacement consideration. RL is also not appropriate for other contract liabilities or other liabilities (e.g. for provisions, current consideration is not measurable). Given that historical consideration is also theoretically unacceptable for reasons explained earlier, this leaves various versions of exit value.

As HMS explain, the theoretical preference of the IASB and the FASB as a general measurement basis has been FV in the sense of the market price that would have to be paid to transfer (not settle) a liability (FASB 2006, para. 15). This is a version of 'cost to transfer' in terms of the discussion earlier in this paper (though neither net nor gross of costs). The arguments earlier (e.g. those of HMS), however, suggest that such a value is not usually relevant. Clearly more relevant is a measurement based on an estimate of the cash flows that the management actually expects to pay out.

In practice, the issue might be resolvable in another way because the most obvious problem with FV is that, for many liabilities, there is no market in which reliably to measure the transfer price. Examples are law suits, restructuring costs, de-commissioning costs, and the costs of performing Revrec or Pomair's contracts. Consequently, just as discounted cash flow often[19] has to be used as an estimate of an asset's fair value, so discounted cash flow (i.e. cost of performance, PV) would have to be used to estimate a liability's fair value. On the other hand, where there is an easily verifiable fair value (e.g. in the case of derivative liabilities), it could stand in for RV.

The conclusion might be that standard setters should divide liabilities into two types: those with and those without an active market. The former could be valued at fair value, the latter at cost of performance, except in unusual cases where cost of release (GCR) or cost of transfer (GTV) can be shown to be lower.

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The author acknowledges helpful comments on an earlier draft from Richard Barker, Jane Davison, Andrew Lennard, Christopher Napier, R.H. Parker, Christian Stadler and Geoffrey Whittington. Further, he is most grateful to Richard Macve and his co-authors for providing many useful suggestions for improvement.
(Editor's note: I invited Horton, Macve and Serafeim to respond to Nobes' comments.)

Brief response by Horton, Macve and Serafeim

Nobes's helpful analysis here further clarifies his (2003) argument in favour of performance value (PV) for liabilities – which will not generally be fair value (FV) in particular because FV as now defined by FASB (2006), followed by IASB (2011), excludes the relevant transaction costs. We agree that the notion of 'replacement liability' (RL), that we have argued (HMS, 2011) can often represent the Relief Value (RV), does not always fit several common kinds of contracts, and in particular several 'one off' or 'time-is-of-the essence' contracts such as his Pomair example of a scheduled airline flight. Other similar examples probably include theatre bookings, wedding and banquet bookings, holiday bookings, etc. which do comprise a large proportion of situations where revenue is collected in advance. But cancellation terms and the extent of any unmet demand, especially given market-segmented pricing, are clearly going to be a crucial factor in determining what liability provisions are appropriate, and when revenue and profit may safely be regarded as 'earned'. And accounting for the costs to which a 'going concern' business of this kind is committed may need to extend beyond what is recognised in current practice.

It should not be a surprise that there are industries which do not easily fit the conventional DV/RV 'tree'. Baxter (1975, chapter 12) discusses various situations where deprival value of assets is hard to apply, as 'replacement cost' is hard to measure or seems inapplicable. (A construction contract, such as Yellowco's, is one of these: so we need to consider both the DV and the RV aspects of this example situation, including pipeline orders.) However, we would still argue (for the reasons given in our paper) that our assumption for the annual magazine and insurance subscriptions, that relief allows the starting of a further year's supply earlier than originally planned, is not 'unusual' and is applicable to many similar, normally ongoing, contracts which earn 'abnormal profit' (profit in excess of that needed to cover interest and risk). Measuring at 'replacement liability' (RL) can here reconcile accounting for both revenue recognition and liabilities. Nobes also expands the RV decision tree to incorporate more possible branches, but we would reiterate his and our warning that, while such a 'tree' can deal with relatively simple situations and is a useful pedagogic device, it can be misleading especially when complex situations require Baxter's (1971, 1975, chapter 12) fuller analysis of 'how would relief [or deprival for assets] change the expected present value of all future cash flows, assuming rational economic behaviour to maximise this both beforehand and afterwards?'. Our further analysis of a variety of more complex contract situations from this general theoretical perspective on RV must await another paper.

Notes

1. See HMS section 3.1, where they note that the transaction costs would make RL lower and NTV higher.
2. Lennard (2002, p. 7) says: 'So typically we would expect consideration received to be the relevant measure for a liability, just as replacement cost is for an asset'. Note that he says 'consideration received' not 'current consideration' or 'replacement consideration'; and the whole drift of pages 6 and 7 is about historical consideration, as is the conclusion (p. 10) that his recommendation is 'consistent with prevailing practice'.
3. As endnote 1.
4. As endnote 1.
5. Under IFRS 13 (paras. 24 and 25), fair value is an exit price but without adjustment for transaction costs.
6. This would be more likely when price changes are introduced, which had not been done at this stage of the HMS paper.
7. In his Appendix B, Lennard notes problems with the use of current entry values, and supports historical consideration on pragmatic grounds.

8. At one point (section 2) HMS refer to the RV being the deferred revenue, but this is in an introductory paragraph before price changes are considered, and the expression is not used later.
9. This is the exit value that a rational entity would pursue, i.e. the higher of net realisable value and value in use (discounted cash flows).
10. For example, under IAS 11, for a contract expected to make a loss.
11. See the wry discussion in HMS (section 1) on this adjective.
12. Annual Report 2010, p. 11.
13. HMS, in a note to me of 28.7.2011, raise many interesting issues for the analysis of Pomair, e.g. whether the unit of account should be the flight rather than the seat. Nevertheless, they come to similar conclusions to mine.
14. Admittedly, there is some confusion in IAS 37 between cost of release (para. 36) and cost to perform (para. 45), but in practice cost to perform is used.
15. Baxter (1971, chapter 9) analyses deferred tax on capital allowances, etc. as a valuation adjustment to the deprival value of assets rather than as a liability.
16. Relevance was discussed earlier. It is used by HMS and by me for selecting a measurement basis. It relates to what a rational entity would do.
17. For example, HMS include risk-bearing as well as interest. Geoffrey Whittington has also suggested to me that one needs to take account of risk and normal profit.
18. HMS do not think it is optimality that is the issue but the nature of some 'unique and one-off' type contracts that they have not yet analysed and where it is not just revenue recognition but also commitment to future cost that is at issue (note from HMS to me on 28.7.2011).
19. For example, in the impairment standards in US GAAP (as introduced by SFAS 121), and as a 'Level 3' basis in IFRS 13.

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